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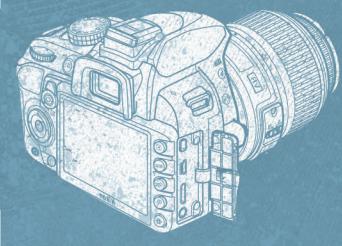
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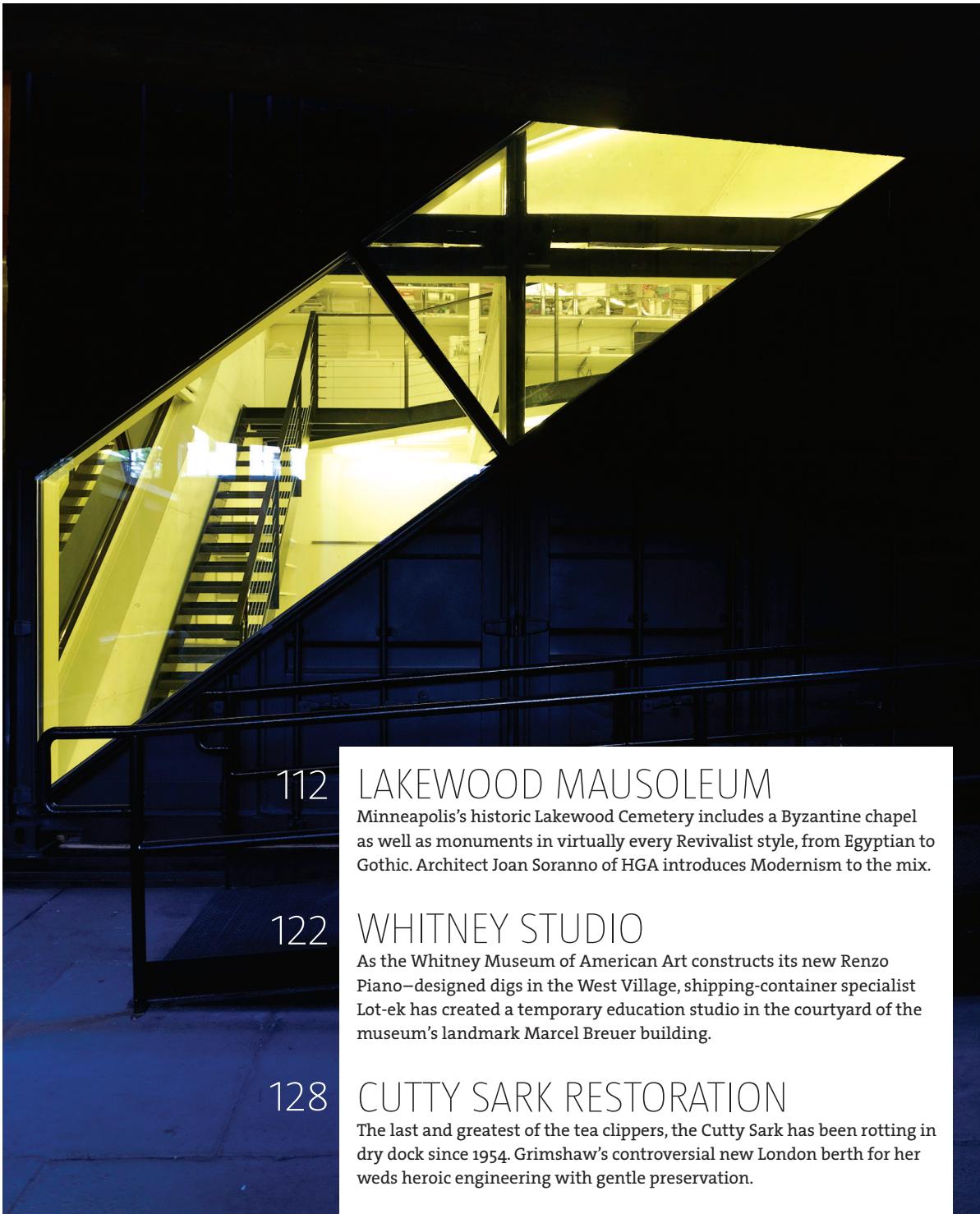
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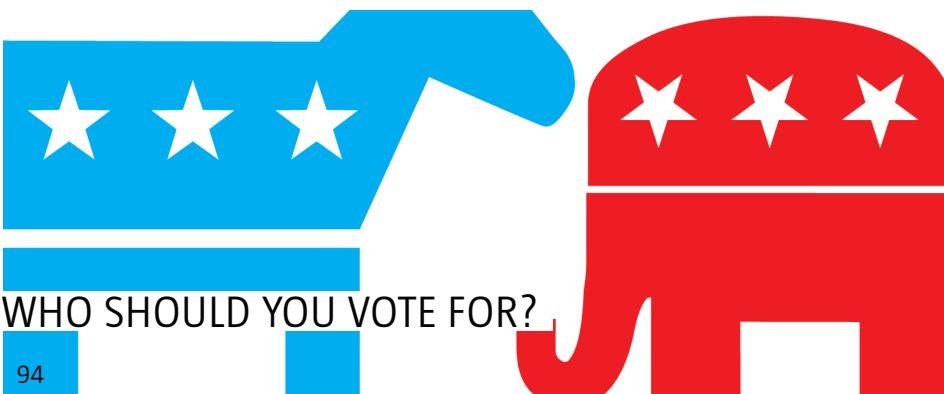
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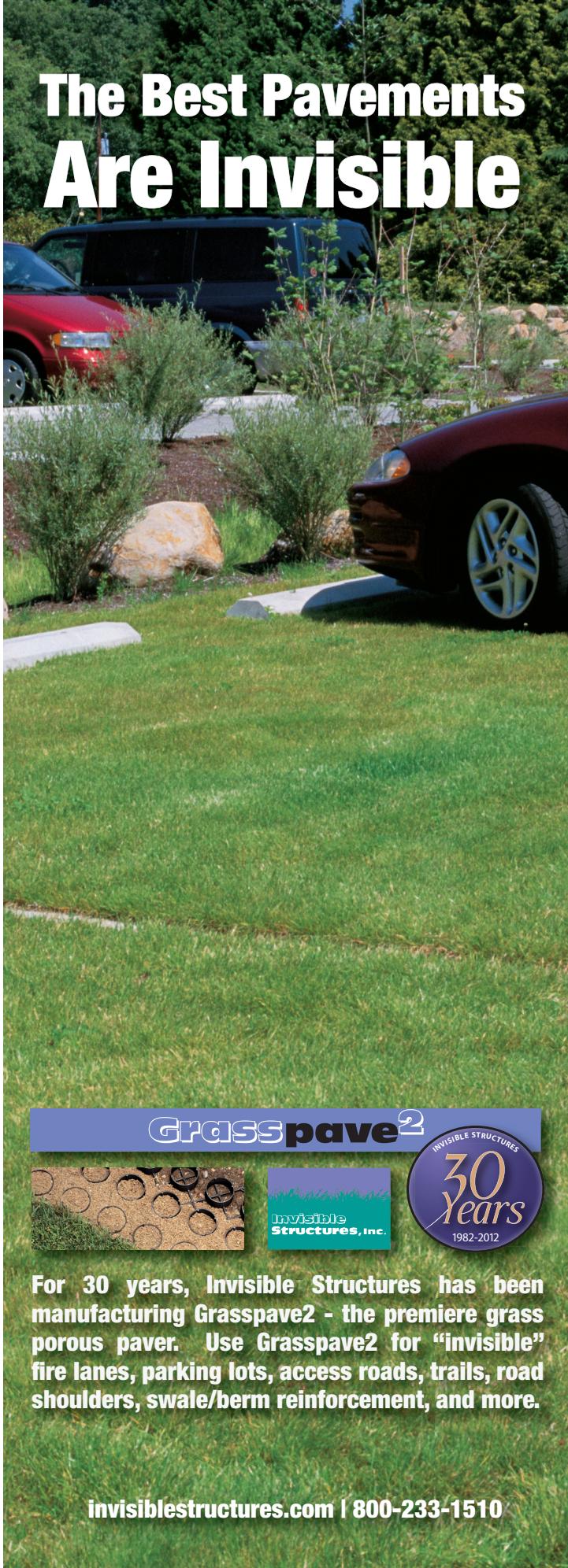
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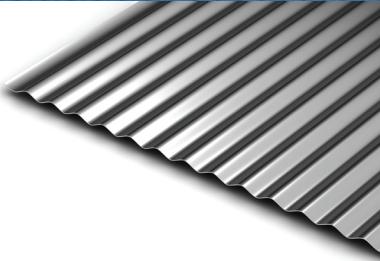


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# DIALOGUE



WHILE NEW GRAPHICS COULD EMERGE AS ONE OUTCOME OF THE AIA REPOSITIONING, THE INITIATIVE PROMISES TO DO FAR MORE THAN SIMPLY REVAMP THE OLD "CHICKEN-ON-A-STICK" LOGO.

## HOPE & CHANGE

THE AIA IS ENGAGING ITS MEMBERS AND THE PUBLIC IN AN IMPORTANT CONVERSATION ABOUT THE FUTURE.

**THE AIA EMBARKED** upon an important journey earlier this year—a year-long project called Repositioning the AIA. The goal, according to the Institute, is to better understand what “the role and voice of the AIA” should be at a time when the profession (and practically every other organization and individual) faces massive change on most every front: social, cultural, technological, economic, political, et al.

To help guide the process, the AIA has retained blue-chip graphic design firm Pentagram as well as branding firm LaPlaca Cohen, which has worked with an impressive roster of cultural institutions, from the National Gallery of Art to the L.A. Philharmonic. The repositioning is in very good hands.

The word “branding” brings to mind visuals like the Nike swoosh. And while new graphics could emerge as one outcome of the AIA repositioning, the initiative promises to do far more than simply revamp the old “chicken-on-a-stick” logo.

The AIA has been conducting surveys and interviews with the membership, architects’ clients, and the general public—and has reached some 30,000 responses as of this August. Here’s what clients had to say when asked about their “experiences, motivations, and barriers to working with architects,” according to a recent project update on the AIA website: “The leading motivator cited for working with an architect was ‘Architects have knowledge of construction requirements and building codes.’ This statement was selected over twice as frequently as ‘Architects have superior design expertise.’”

That alone is pretty revelatory—and there’s more: Members of the general public, for their part, “believe it is difficult to know where to find a qualified architect and choose the right architect for a project.” Intelligence such as this, taken cumulatively and with an open mind, could help steer not only the reshaping of the AIA brand, but also the very way that the Institute translates its mission into deeds.

Positive change requires asking difficult questions and being willing to sweep away some long-held prejudices and opinions. To that end, consider the following enjoinder from LaPlaca Cohen and Pentagram: “The AIA should

honestly assess how many attributes on the list below accurately describe the AIA community:

- Progressive, not reactionary
- A vital resource, not a superficial designation
- Universally beneficial, not limited and elitist
- Adding value, not additional financial burden
- At the cutting edge, not a follower
- Public facing, not behind closed doors
- An architecture resource for all, not just for industry insiders
- Results- and benefits-focused, not process-driven or self-referential ... ”

LaPlaca Cohen and Pentagram are being provocative here, but in an extremely smart and well-intentioned way. Their list exposes core issues to the light—issues that practitioners themselves are raising, in increasingly public forums. Witness the reports from the field that my colleague Jane Kolleeny (until recently an editor at *Architectural Record* and *GreenSource*) is posting at [aia.org/repositioning](http://aia.org/repositioning). The reports, based on her interviews with groups of members across the country, make it perfectly clear that there is widespread desire for the Institute and the profession to change in meaningful ways.

If you ask me, it’s a very good thing for the AIA to be doing a bit of soul-searching. Institutions as a whole are notoriously resistant to change, especially when change is thrust upon them. And the emergence of social media combined with the difficulties presented by the Great Recession, climate change, and an aging population are forces well beyond the profession’s control. What we can control is the way we respond to such forces, which makes the Repositioning the AIA initiative a wise and ultimately essential endeavor. There should be no doubt about the necessity for change, or our ability to determine the correct path to take next. We simply need to keep an open mind.

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# LETTERS



## August Issue: Spontaneous Interventions

I have long looked forward to getting ARCHITECT; it means a long lunch. But I found AIA Voices to be one of the only articles that was presentable [in this issue]. I find it very hard to get to the content due to the elaborate multisized text, layouts, abstracts, and just poor formatting.

**TONY J. LINEBERRY, AIA, RALEIGH, N.C.**

I have always thought your magazine should be called *Sustainability Monthly* with maybe a building thrown in, but the latest issue doesn't even throw in a building. Now this rag is some type of Occupy-something.

**MIKE BLANKENSHIP, AIA, DALLAS**

### Contact Us:

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[letters@  
architectmagazine.com](mailto:letters@architectmagazine.com)

When I want to assault my eyeballs again I'll buy a copy of *Wired*. I think it does the writers a great disservice to present their ideas so peripatetically. There are plenty of other opportunities for your graphic designers to demonstrate their skills.

**THOMAS REX HARDY, AIA, SAN FRANCISCO**

## Double Whammy, September, page 76

There are quite a few of us [women] in the nonprofit sector. I am in charge of real estate development for the largest social services nonprofit in the Midwest, which has undertaken over 40 projects with an aggregate cost of \$265 million. We develop affordable housing. While we focus on a different type of product, the steps are the same as my colleagues in the commercial arena. One key difference is that they get to sell the completed building. We get to operate it and live with it at least for 40 years. That keeps me on my toes.

**GRACIA MARIA SHIFFRIN, AIA, CHICAGO**

*Corrections:* In September's Dialogue, the "monstrous carbuncle" quote by Prince Charles should have referred to the first scheme for the National Gallery's Sainsbury Wing by Peter Ahrends, not the eventual design, finished in 1991 by Venturi Scott Brown & Associates. Also, in September's Products section, LeMouton Noir & Co. was misspelled. ARCHITECT regrets the errors.



Witold Rybczynski  
@witoldr: Got  
my new copy  
of ARCHITECT  
magazine. Snappy  
graphics. But  
unreadable.

Alex Menglide  
@menglide: I have  
so many September  
magazines to read  
and yet I'm about  
to RE-read the  
August issue of  
@architectmag.  
Spontaneous  
Interventions FTW.

Boring Postcards  
@BoringPostcards:  
Thx for the Brutalist  
architecture slide  
show—great photos  
of some very cool  
buildings.

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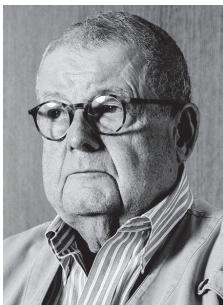


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# CONTRIBUTORS



STANLEY TIGERMAN

**STANLEY TIGERMAN, FAIA**, is a principal in the Chicago architecture and design firm Tigerman McCurry Architects and the author of seven books and numerous articles on architecture.

Tigerman received both his B.Arch. and M.Arch. from Yale University, in 1960 and 1961, respectively; in 1985, he received Yale's first Alumni Arts Award. He has served on advisory committees for the Yale and Princeton Schools of Architecture as well as the Chicago Art Institute's Department of Architecture. In addition to visiting professorships at several universities, Tigerman was the director of the School of Architecture at the University of Illinois at Chicago for eight years.

As a designer, Tigerman has executed buildings throughout the world. Highlights include the Five Polytechnic Institutes in Bangladesh, the Pacific Garden Mission in Chicago, and the Holocaust Museum and Education Center in Skokie, Ill. In 1980, he was the resident architect at the American Academy in Rome. He represented the U.S. at the 1976, 1980, and 2012 Venice Architecture Biennales.

As a founding member of the Chicago Seven, Tigerman has had an indelible effect on Chicago's architecture. In 1992, he received the Illinois Academy of Fine Arts Award, and in 2000, the International Union of Bricklayers and Allied Craftworkers honored him with the Louis Sullivan Award. He was the winner of the AIA Illinois Gold Medal in 2008, a year in which he also received the AIA/Association of Collegiate Schools of Architecture Topaz Medallion for Excellence in Architectural Education. Among other topics, Tigerman has edited several books on Chicago architecture, including *Visionary Chicago Architecture* (Chicago Central Area Committee, 2005).

Tigerman served as the chair of the AIA Committee on Design in 1976, won the Dean of Architecture Award in 1989, and was inducted into the Interior Design Hall of Fame in 1990. His work has been exhibited at the Museo di Castelvecchio in Verona, Italy, as well as at Chicago's Art Institute and Graham Foundation. Tigerman published an autobiography, *Designing Bridges to Burn* (ORO), in 2011.

➲ READ TIGERMAN'S INTERVIEW WITH WIEL ARETS, THE NEW DEAN AT THE ILLINOIS INSTITUTE OF TECHNOLOGY COLLEGE OF ARCHITECTURE, ON PAGE 68.

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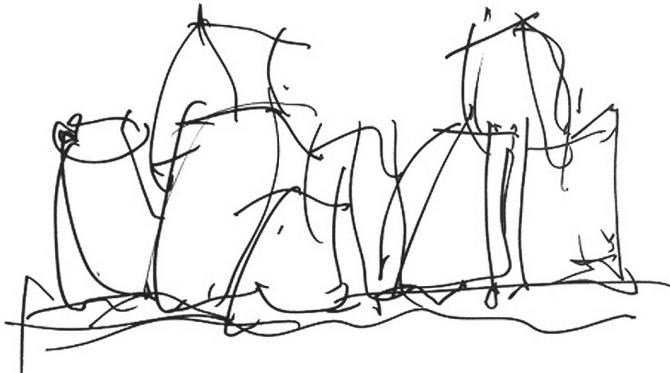


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# FRONT



## GEHRY & OBAMA, & SCI-ARC, & FACEBOOK

### FRANK GEHRY MAKES MOVES IN THE PUBLIC REALM.

Frank Gehry, FAIA, is a man about town. In the space of about a month, he endowed a new scholarship, participated in a high-brow (and high-dollar) fundraiser for President Barack Obama, and earned a whole lot of new friend requests on Facebook.

In early September, the Southern California Institute of Architecture (SCI-Arc) announced the Gehry Prize, a new annual award. Gehry, a SCI-Arc trustee since 1990, donated \$100,000 to the school to endow the gift. The prize will go to the school's best thesis projects, as determined by a panel of critics and jurors. During the Sept. 9 commencement and thesis presentation, the school announced the first inaugural Gehry Prize winners: the husband-and-wife team of Liz von Hasseln (M.Arch. 1 '12) and Kyle von Hasseln (M.Arch. '12).

But the Pritzker Prize-winning architect intends to make an even bigger impact. Gehry has joined a stellar panel of artists—including John Baldessari, Bruce Nauman, Richard Serra, Claes Oldenburg, and others—in a fundraising effort for the incumbent president. Under the name "Artists for Obama," Gehry and company have created a limited-edition portfolio of prints that can be yours—for a \$28,000 political donation to the Obama campaign. (Gehry's addition, an 11-by-14-inch lithograph titled *In town*, is pictured above.) The proceeds, which will go to the campaign and the Democratic National Committee, could total \$4.2 million.

Gehry may have found a friend more powerful than even President Obama: Mark Zuckerberg. In late August, Facebook environmental design manager Everett Katigback took to the company Timeline to tell all 955 million Facebook members that Gehry will expand Facebook's campus in Menlo Park, Calif. "It will be a large, one room building that somewhat resembles a warehouse," Katigback offered. In short order, the post garnered 600 likes and 200 shares. Not bad for an architect. KRISTON CAPPS AND ALEXANDRA RICE

LEFT TO RIGHT: COURTESY GEHRY PARTNERS; WIKI COMMONS

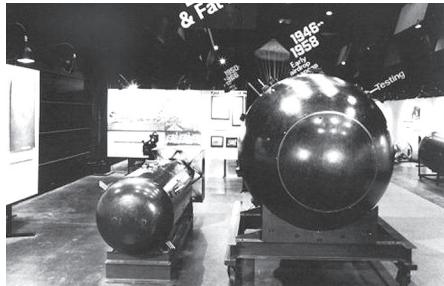
### VENICE CHATTER

"THIS EVENT [THE VENICE ARCHITECTURE BIENNALE] IS AN EXPENSIVE DANSE MACABRE. IN A CITY OF PLUNDER (AN EXHIBITION OF PLUNDER) Hordes of tourists (architects) roll along broken infrastructure in order to satisfy their petit bourgeois desire for education (in the case of the architects: vanity, envy, schadenfreude, suspicions). Even the glamour that the visitors are supposed to feel is staid and faked by the media for whom a star architect is like a film star."

—WOLF PRIX,  
ARCHNEWSNOW.COM

## ATOMIC PARK

PLANS FOR A NATIONAL PARK HONORING THE MANHATTAN PROJECT FAILED TO PASS A VOTE IN THE HOUSE.



Replica casings of Little Boy and Fat Man.

A bill that would have established a new national park honoring the scientific achievements of the Manhattan Project—the research and development program that gave the world the nuclear bomb—failed in the House of Representatives in late September.

H.R. 5987, the Manhattan Project National Historic Park Act, would have established a multisite national park in three places where the development of the atomic bomb unfolded: Oak Ridge, Tenn.; Los Alamos, N.M.; and Hanford, Wash. The act's sponsor, Rep. Doc Hastings (R-Wash.), had attracted the support of a majority of representatives across partisan lines before the bill came up for a vote.

A procedural irregularity allowed the park's opponents to frustrate the bill's passage. Under normal circumstances, H.R. 5897 would have passed: It garnered 237 yea votes, sufficient to pass under majority rules. But the bill came before the House of Representatives under "suspension," an expedited procedure in which debate time is limited and a bill requires a supermajority to pass.

Rallied by Rep. Dennis Kucinich (D-Ohio), a minority of House representatives, 180 altogether, voted nay. The bill fell 53 votes shy of the measure needed to pass under the fast-track rules.

"We should not celebrate the death of hundreds of thousands of innocent civilians or the destruction of two major Japanese cities no matter how proud we are of our ability to innovate," Rep. Kucinich said in a release after the vote failed.

The Manhattan Project National Historic Park Act would have incorporated several historic sites into the national park. Hanford's Reactor B, where scientists transmuted irradiated uranium into plutonium, was one of them, as were relevant facilities and areas in Los Alamos and Oak Ridge.

Plans for the new national park had not yet outlined the role that architects and landscape architects would play in restoring the historic sites or building new research and education centers. But those plans may still come to fruition. The Associated Press reports that Rep. Hastings does not consider the bill dead—only delayed. K.C.



## THE ARKANSAS STATE VETERANS CEMETERY AT BIRDEYE

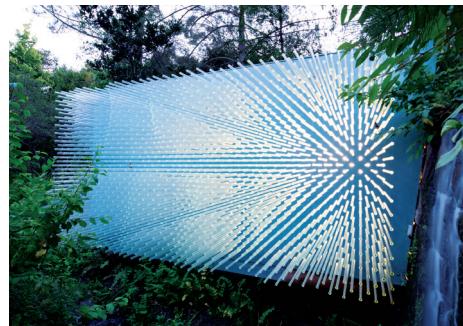
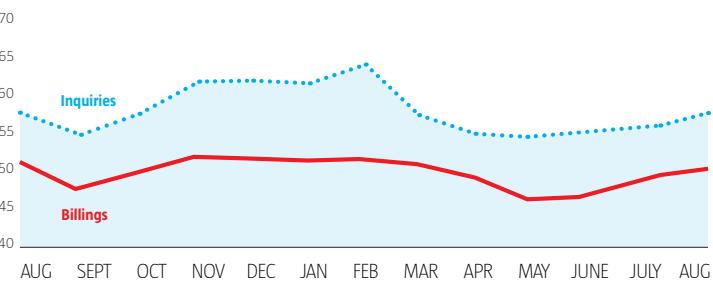
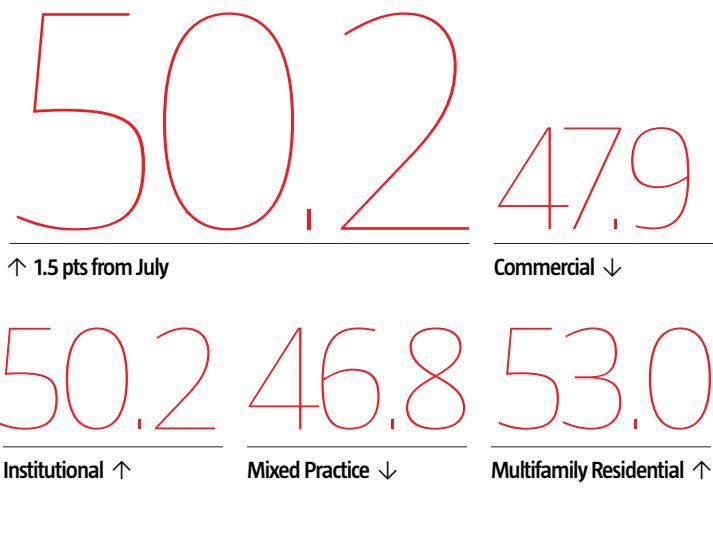
FENNELL PURIFOY'S BIRDEYE CEMETERY PROVIDES SOLEMN SPACES FOR REFLECTION AND CEREMONY WITHIN THE 100-ACRE SITE.

The Arkansas State Veterans Cemetery at Birdeye, Ark., serves as a final resting place for fallen soldiers from the eastern and northeastern parts of the state. Fennell Purifoy Architects, based in Little Rock, Ark., designed three buildings at the cemetery: a welcome center, a committal shelter, and a maintenance shed. Both primary structures share a common formal language and materials palette, which consist of board-formed concrete, glue-laminated wood framing, and bronze-colored, standing-seam metal siding.

Visitors enter the 4,606-square-foot welcome center beneath a large overhang, which leads them into the building through its austere concrete face. Once inside, visitors can gaze across the landscaped cemetery through the curving glass and metal façade. The building receives shade from a roof that rests on the exterior concrete wall on the entry side, and on timber structural members on the cemetery side.

The Arkansas climate, which generally places a large demand on cooling, posed an additional challenge. The architects designed large overhangs to provide shading, and sited the buildings to minimize exposure. "In this particular case, the width of the windows gets larger as you turn south," says principal Phil Purifoy, AIA. "We did some sun studies, and the gain in the morning on the east side was pretty intense, so we narrowed the windows there." **DEANE MADSEN**

### August 2012 Architecture Billings Index



### SOLYNDRA PAVILION

"SOL Grotto," a pavilion designed by Rael San Fratello Architects for the University of California at Berkeley, features repurposed glass tubes that project from both sides of its envelope. The tubes come courtesy of renewable power company Solyndra, which left behind some 24 million cylinders after it declared bankruptcy last year. **BLAINE BROWNELL**

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"ONE WAY OF APPROACHING THE CHALLENGE [OF EMBASSY DESIGN] IS TO PUT SAFETY AT AN ABSOLUTE PREMIUM—THE 'FORTRESS AMERICA' APPROACH. BUT ANOTHER MIGHT BE TO ACCEPT OUR VULNERABILITY, TO UNDERSTAND THAT THE JOB—PARTICULARLY IN UNSTABLE REGIONS OF THE WORLD—IS, IN FACT, DANGEROUS. DIPLOMACY IS THE POINT, NOT THE ERECTION OF A MILITARY OUTPOST. —TA-NEHSI COATES, *THE ATLANTIC*

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## STEEL

**Forget newspapers** and those pesky empty water bottles. Steel, it turns out, is the most recycled material on Earth. The product produced by modern mills contains an average of 90 percent recycled material; most domestically produced, hot-rolled structural steel, like round and square bar and tubing or flange beams, contains an average of 88 percent recycled content. Steel is a surprisingly LEED-friendly building material.

"The majority of projects pursuing Materials and Resources (MR) credits in LEED submit steel as a contributing material," says Jennifer Easton, communications associate at the U.S. Green Building Council. "Eighty-nine percent of LEED for New Construction, LEED for Commercial Interiors, and LEED for Core and Shell projects have achieved MR credit 4 recycled content, and steel is a major contributing material to that credit."

The product that gave rise to the skyscraper is no longer relegated to infrastructure. Architects now use steel both structurally as well as decoratively. And some take advantage of steel's malleability to create more artistic uses that may not even provide structural support. Quips Joseph Crowley, AIA, project manager at the New Orleans-based firm Perez: "Only steel can be molded like a pretzel and still be structurally sound."

MARGOT CARMICHAEL LESTER

**\$37 billion**

Structural Steel Annual Revenues, 2012

SOURCE: IBISWORLD

**-3.2%**

Structural Steel Annual Growth

SOURCE: IBISWORLD

**65%**

U.S. Structural Steel Used in Building Projects Under Roof, 2011

SOURCE: AMERICAN INSTITUTE OF STEEL CONSTRUCTION

**7%**

Increase in U.S. Crude Steel Production, 2011

SOURCE: U.S. STEEL INDUSTRY OUTLOOK TO 2015 (REPORTLINKER)

## VENICE TWITTER

**@KIERANLONG:**  
I THINK IF WOLF PRIX HATES  
YOU, YOU ARE DOING  
SOMETHING RIGHT.

**@CRYSTALBENNES:**  
IGNORING THE SNARKY  
THEME COMMENTS, I THINK  
HE MAKES SOME SALIENT  
POINTS ABOUT CONTINUED  
RELEVANCE OF BIENNALES IN  
CURRENT FORM

**@KONISHIGAFFNEY:**  
IT READ TO ME LIKE HE'S  
PITCHING FOR THE ROLE OF  
DIRECTOR NEXT YEAR.  
BIT JADED HIS ATTACK

**@KIERANLONG:**  
IT'S CERTAIN TO BE REM  
KOOLHAAS NEXT TIME. DONE  
DEAL SAY MY SOURCES.

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ALTHOUGH NOT YET FUNDED, THE HOK-DESIGNED TRAIN SHED PROMISES A DOUBLING OF CAPACITY UNDER THE STATION'S NEW GREEN ROOF.



Washington, D.C., is the latest in a slew of U.S. cities looking to upgrade its rail infrastructure. Amtrak has released renderings, developed in collaboration with HOK and Parsons Brinckerhoff, of a new development for Union Station, which would double the facility's capacity for interstate travel, while preserving the existing Daniel Burnham-designed station. The master plan calls for an open train shed capped by an undulating green roof, which emphasizes both the sustainability of the shed itself and the mode of transportation it houses. "Train transportation is one of the most sustainable forms of travel out there," says Bill Hellmuth, AIA, HOK's D.C.-based president and the design leader for Amtrak's master plan. Plans for the new Union Station are in development; the project, once financed, would take 10 to 15 years to complete. D.M.



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**THE LOBBYIST**

For a renovation of the Studio des Ursulines, a Parisian theater founded in the '20s, H2o Architects settled on a strategy to maximize efficiency. While renovating the theater's lobby, the architects consolidated many of its typical functions into one feature—a modular assembly of brick-like parts.

The theater fixture can serve as the lobby's cash register as well as its intermission seating. When it isn't serving any particular use, it is the lobby's central sculptural element. It can adapt to other functions as need arises: seating, tables, storage, and exhibition space. Various register functions, including phone and printer, are concealed inside.

The fixture is tinted black and built on a sliding brass base. When the base's expandable boxes are all closed, the lobby space regains maximal peripheral area—another function the fixture facilitates. K.C.

## NEW YORK ACQUIRES WRIGHT ARCHIVES

"NATIONAL TREASURE" WILL BE CONSERVED AND PERIODICALLY EXHIBITED AT THE MUSEUM OF MODERN ART.

Just when you thought you'd seen every last thing that relates to the life and work of Frank Lloyd Wright, two New York institutions are making the architect's archive, long in storage, accessible to scholars and the public.

The Museum of Modern Art and Columbia University's Avery Architectural & Fine Arts Library jointly acquired the material from the Frank Lloyd Wright Foundation, which has stored it all at Taliesin and Taliesin West since Wright's death in 1959.

The collection includes "more than 23,000 architectural drawings, about 40 large-scale, architectural models, some 44,000 photographs, 600 manuscripts, and more than 300,000 pieces of office and personal correspondence," Robin Pogrebin reports for *The New York Times*. The cost of moving and maintaining what Avery director Carole Ann Fabian calls "a national treasure" is undisclosed. LINDSEY M. ROBERTS

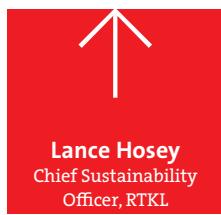
**VENICE CHATTER**

"MY CONCERN IS NOT ABOUT THE CRITICISM, WHICH I DIDN'T UNDERSTAND, BUT THAT THIS STATEMENT AND THE ENSUING 'CONTROVERSY'

STIMULATED BY ITS PUBLICATION REINFORCES THE NEGATIVE ATTITUDES OF OUR ARCHITECTURAL CULTURE. WOLF PRIX DEMONSTRATES NO INTEREST IN THE POSITION OF OTHERS AND ONLY IMAGINES THAT ARCHITECTURE CAN CONFORM TO HIS OWN PRIORITIES AND PRECONCEPTIONS."

—DAVID CHIPPERFIELD IN *THE ARCHITECTS' JOURNAL*

## STEP UP, BIG MOVES ON THE CAREER LADDER STEP DOWN



**Lance Hosey**  
Chief Sustainability Officer, RTKL



**Gary Distelhorst**  
CEO, Marble Institute of America



**Aric Chen**  
Curator of Design and Architecture, M+



**Whayne S. Quin**  
Chair, Board of Trustees, National Building Museum



**Caroline Drosdick**  
Northeast Architect and Design Specialist, Allsteel



**Christopher Nash**  
Managing Partner, Grimshaw



**Marcelle Weslock**  
Civil Engineering Group Leader, LHB



**Louis Carballo**  
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## LIGHT OF MY LIFE

The ephemeral gets timeless when architects and artists represent the digital age in solid crystal. Fourteen designers accepted jeweler Swarovski's challenge to juxtapose the two concepts for the **Digital Crystal** exhibit at London's Design Museum, which includes work by architects and artists Ron Arad, Maarten Baas, Random International, and Yves Béhar. Arad's *Lolita* (shown) at first appears as a conventional chandelier, but upon second glance, it surprises with lit-up digital letters—as if a Times Square news ticker was wrapped around itself and hung in a dining room. Even if you can't make it to London in the real world, you can participate virtually: just tweet *Lolita* a message at #digitalcrystal. Through Jan. 13. • [designmuseum.org](http://designmuseum.org) L.M.R.

CONTINUING ED

## HOT UNITS

### VINYL: A MODERN MATERIAL FOR MODERN TIMES

This program discusses the large role vinyl plays in the design and construction of modern buildings. From exterior elements such as cladding and roofing to interior elements such as flooring and wall coverings, vinyl has a major impact on the built environment. This course covers the uses of vinyl in construction, the attributes of vinyl products, vinyl's role in sustainable design, and the chemistry involved in the production of vinyl products. (1 AIA HSW/SD)

### WHAT MAKES A THERMOPLASTIC ROOF SUSTAINABLE?

In a time when words such as "green," "sustainable," "environmentally friendly," and "all natural" are being used to describe so many products, it is difficult to know exactly what attributes to look for when making a purchase—and roofing is no exception. This presentation provides an in-depth look at sustainable roofing criteria, introduces a methodology for rating the sustainability of various roofing systems, and shows how to look past industry "green washing." (1 AIA HSW/SC; 1 GBCI CMP)

### CARPET IN EDUCATIONAL FACILITIES

This course will show how carpet helped improve student achievement in an elementary school through identifying the physical and nonphysical benefits of carpet in classrooms. It will also show how carpet helps to improve acoustics and indoor air quality in schools. We will take a closer look at why carpet is an overall good flooring choice for schools. (1 AIA HSW)

### SUSTAINABLE GREEN BUILDING WITH CLAY AND CONCRETE ROOF TILE

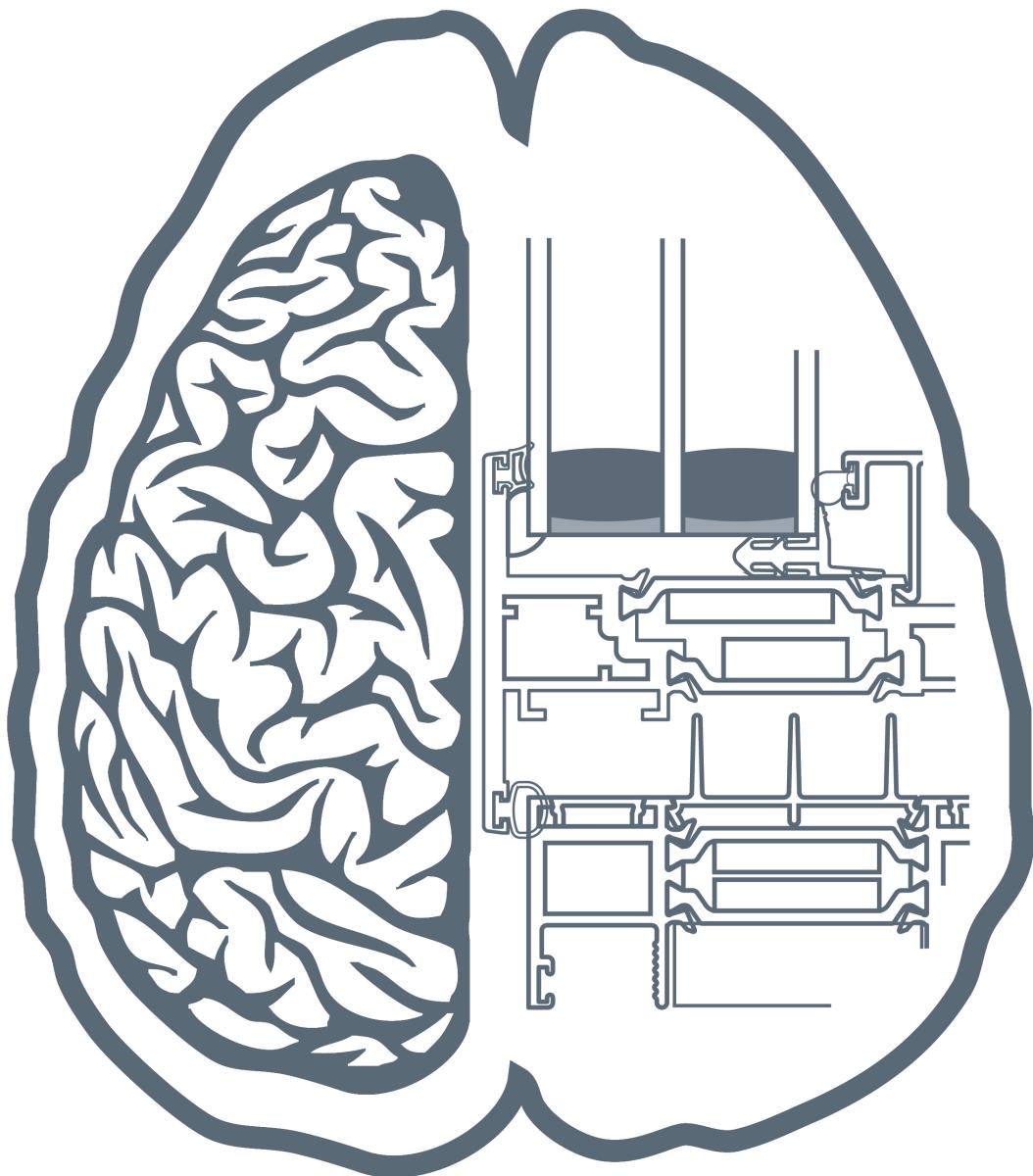
This course looks at the advantages of using clay and concrete roof tiles to increase the efficiency of a building. Computer modeling helps to minimize the use of raw materials for clay and concrete tile. Since these materials are abundant across the U.S., using them reduces the carbon footprint of the finished product. (1 AIA HSW/SC; 1 GBCI CMP)

MORE CONTINUING EDUCATION AT [ARCHITECTMAGAZINE.COM](http://ARCHITECTMAGAZINE.COM)



### NEW SCREEN, NEW HOPE

New York University has installed a floor-to-ceiling perforated screen around the 150-foot-high atrium of Philip Johnson's Elmer Holmes Bobst Library, the site of three suicides over the last decade. Designed by Joel Sanders Architect, the screen's panels pick up the building's gold accents without limiting daylight and ventilation. A.R.



# THERMAL INTELLIGENCE

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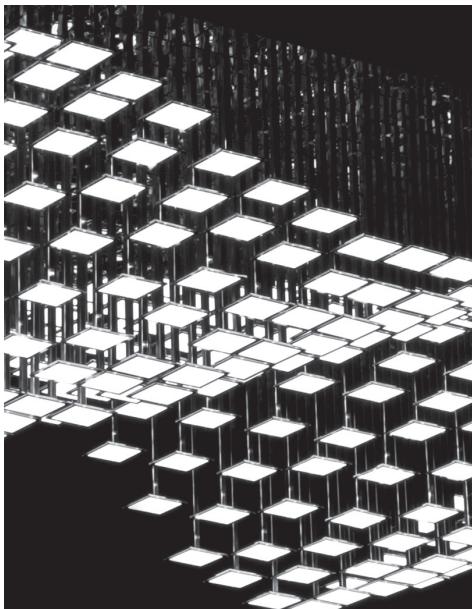


## DESIGNING THE EXTRAORDINARY

Learn about the man behind the 2012 Olympic Games' petal-inspired cauldron at the Victoria and Albert Museum's exhibit **Heatherwick Studio**. The first retrospective of British designer Thomas Heatherwick, 42, includes photos and models of his wonderworks, such as one of the cauldron's petals. Through Sept. 30. [vam.ac.uk](http://vam.ac.uk) L.M.R.

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"AT THIS POINT IN HIS CAREER, [BJARKE] INGELS IS RECOGNIZED NOT FOR EXQUISITELY FINISHED ARCHITECTURE BUT, RATHER, FOR PRECOCIOUSLY CONFIDENT REIMAGININGS OF BUILDING TYPES. 'THE WAY YOU REALLY CREATE CHANGE,' HE SAID, IS TO 'OPEN A POSSIBILITY THAT YOU CAN'T EVEN ARGUE WITH.'" —IAN PARKER IN *THE NEW YORKER*



## MIND &amp; MATTER

## SUSPENDED

**When I attended** the World Expo in Yeosu, South Korea, this summer, I was most impressed by the multimedia display (pictured) exhibited in the atrium of the pavilion put on by LG. It was a hovering ceiling made of over 50 near-edgeless flat-screen monitors. The height of each monitor was individually controlled by a computer.

Berlin-based interactive studio Whitevoid has recently developed an installation of similar spirit for Philips. Called LivingSculpture, the showcase of Philips's OLED technology boasts many more "pixels," with a higher-resulting resolution. The more-detailed sculptural forms made possible by the LivingSculpture 3D system are due to each OLED unit's small size of 76mm square.

Unlike LG's moving display screen, the LivingSculpture 3D simply emits light at a consistent temperature of 3,000 K. But this simple focus on lighting provides users with new opportunities to measure the varying effects of illumination at different heights and intensities. B.B.

## INTERIORS

## CHECKING IN

THE AMERICAN SOCIETY OF INTERIOR DESIGNERS SAYS THE STATE OF THE INDUSTRY IS STRONG-ISH.

The American Society of Interior Designers (ASID) released its first State of the Industry report in Washington, D.C., last month, and happily, executive vice president and CEO Randy Fiser reports that after a "gloomy" 2010 and an "erratic" 2011, the interior design industry "has sustained positive, though modest, growth over the past 10 months." Leading the charge is residential work, which has shown positive growth for nine out of the past 10 months, spurred largely by home remodels. In the commercial realm, retail and hospitality have been showing positive growth while office and healthcare have been "more uneven," Fiser says.

The report also shows that in 2011, the interior design industry posted \$9.3 billion in revenue—\$1 billion of which can be attributed to interior designers who work at architecture and design firms. Billings are on the rise in 2012, and "hiring is up slightly, though not as much as anticipated," says Michael Berens, director of research and knowledge resources for ASID. "Five percent was anticipated, but it ended up being only 3.5 percent overall." KATIE GERFEN

41,000

Number of employed U.S. interior designers, 2011

SOURCE: U.S. BUREAU OF LABOR STATISTICS

\$2 million

Average annual value of products specified, 2010

SOURCE: 2010 UNIVERSE STUDY OF THE INTERIOR DESIGN PROFESSION

80%

Percentage of interior designers who work in firms of 5 or fewer employees

SOURCE: ASID

15%

Decline in the number of U.S. interior-design firms from 2009 to 2011

SOURCE: U.S. BUREAU OF LABOR STATISTICS QUARTERLY CENSUS OF EMPLOYMENT AND WAGES, 2011

15%

Percentage of firms that specified more than \$10 million in products in 2010

SOURCE: 2010 UNIVERSE STUDY OF THE INTERIOR DESIGN PROFESSION

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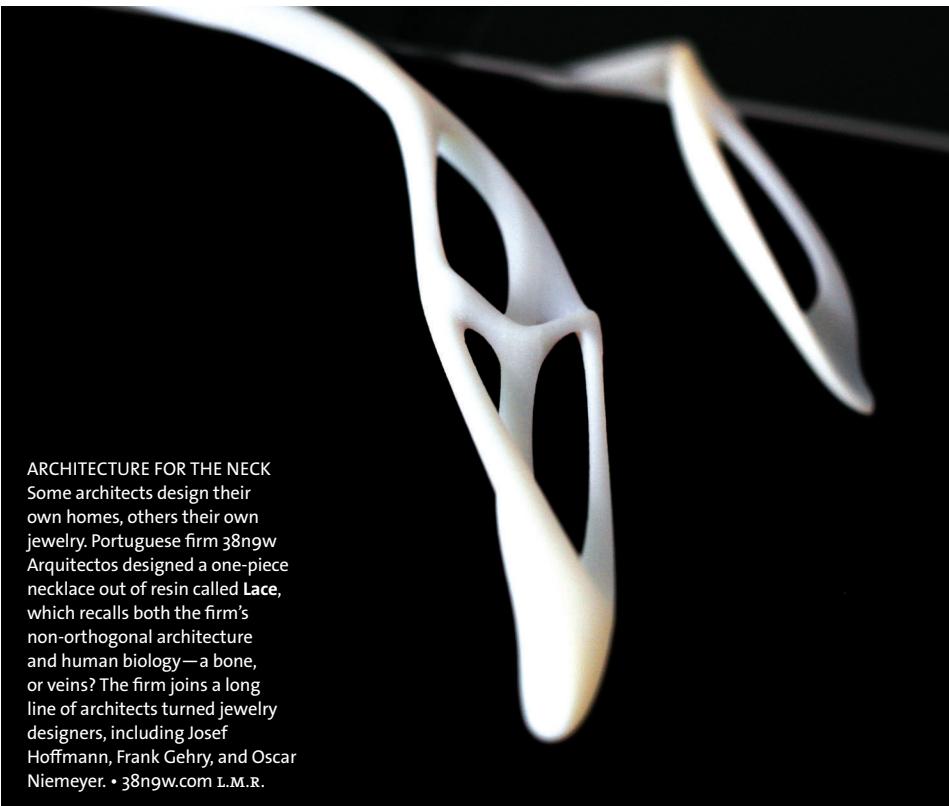
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## ARCHITECTURE FOR THE NECK

Some architects design their own homes, others their own jewelry. Portuguese firm 38n9w Arquitectos designed a one-piece necklace out of resin called *Lace*, which recalls both the firm's non-orthogonal architecture and human biology—a bone, or veins? The firm joins a long line of architects turned jewelry designers, including Josef Hoffmann, Frank Gehry, and Oscar Niemeyer. • [38n9w.com](http://38n9w.com) L.M.R.

2,300

Number of items in the nation's largest architectural toy collection. A small selection will be on display in "Play Work Build" beginning in November at the National Building Museum, where the collection, first assembled by retired schoolteacher George Wetzel, now resides.



SOURCE: NATIONAL BUILDING MUSEUM

## BEYOND BUILDINGS

## A MUSIC FACTORY FOR SÃO PAOLO

### A FAVELA IN BRAZIL IS MAKING ROOM FOR COMMUNITY LIFE.

Can architecture actually make a difference? The Music Factory, an arts and sports center that interdisciplinary design practice Urban-Think Tank designed for a São Paulo, Brazil, favela, intends to test that premise. The project incorporates sports fields as well as space for a local youth orchestra and ballet program in a crowded neighborhood. The open concrete framework will also stabilize the land on which it will stand, providing open park space as well as plots for small-scale urban agriculture.

Urban-Think Tank has created such structures before, mainly in Venezuela, and is now moving its South American office to São Paulo—a city that offers countless opportunities for architecture to make a social and physical difference. I wonder whether this kind of approach—open, constructive in appearance and effect, coming out of environmental and social analysis, and connective in all aspects—should not be the starting point for civic structures all around the world. AARON BETSKY



CLOCKWISE FROM TOP: COURTESY 38n9w ARQUITECTOS; COURTESY NATIONAL BUILDING MUSEUM; COURTESY URBAN-THINK TANK



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# Keeping it quiet in the classroom

## Designing a classroom to meet the acoustical requirements of ANSI and LEED® is neither difficult nor costly

On any given school day, thousands of students across the country are unable to understand 25 to 30 percent of what's said in their classroom. The result is a decreased level of concentration, an increased level of stress, and an overall reduction in the level of learning.

To help create more effective spaces for teaching and learning, Armstrong offers a portfolio of ceilings that can substantially improve classroom acoustics. As the industry leader, we have invested heavily through the years to raise the effectiveness of the ceiling plane to help you bring out the best in students. So familiarize yourself with today's acoustic requirements, choose the right Armstrong ceiling, and enhance the learning experience for students and teachers alike.

### Meeting the standards

Designing a classroom to meet the acoustical requirements of ANSI and LEED is neither difficult nor costly. The key is including acoustic concerns early in your planning stages. With that in mind, here are general guidelines for reducing reverberation time as well as background noise.

**Reducing reverberation time** Reverberation time can be reduced by adding sound-absorbing material to a room. In classrooms where the ceiling heights are ten feet or less, the best option is to place the sound-absorbing material on the ceiling. To reduce reverberation, choose a ceiling panel that has an NRC of at least 0.70.

Armstrong has the perfect choice for classrooms: School Zone™ Fine Fissured™ ceilings. Designed specifically for educational facilities, these ceiling tiles feature greater impact resistance and better sound absorption than most conventional ceiling panels commonly used in these applications. Armstrong Ultima® and Mesa™ ceiling panels are also good choices.

**Reducing noise traveling through the plenum** To reduce this type of noise intrusion, choose an acoustical ceiling panel that has a Ceiling Attenuation Class (CAC) of 35 or higher. Once again, Armstrong School Zone Fine Fissured is a good choice because not only does it have a high NRC of 0.70, but also a high CAC of 40. Ultima and Mesa ceilings are also available with a high CAC.

**Reducing noise traveling through the walls** According to the ANSI standard, the minimum STC of a wall separating two adjacent classrooms is 50. The use of Soundsoak® wall panels on either or both sides of the wall along with fiberglass insulation in the cavity will help achieve this rating and reduce noise transmission between rooms.

**Reducing HVAC noise** The main source of background noise in classrooms is usually the HVAC system. In terms of acoustical design, a centralized system is much better than window or room units. Room units contain fans that are usually loud and difficult to treat with sound-absorbing materials due to their position in the classroom.

### Open plenum spaces

A good retrofit option, especially in open plenum spaces where the HVAC, plumbing, and other building service lines are exposed, is the Optima® Capz™ ceiling system from Armstrong. This system is a very affordable way to retrofit poor acoustic-performing spaces because it provides excellent sound absorption properties while maintaining the look and feel of open plenum designs.

The panels have an NRC of 0.90, and can be installed onto the deck above to maximize ceiling height, onto drywall, or suspended with wires. And installation over only 20% of an area can reduce undesirable reverberation by 50%.

### Acoustical clouds and canopies

Another solution for open plenum spaces and public spaces are Formations™ and SoundScapes® acoustical clouds and canopies, two types of "free-floating" ceilings from Armstrong that add sound absorption in a space while still allowing for the exposed look.

A typical Formations cloud system consists of pre-cut acoustical ceiling panels and a kit containing all the ready-to-assemble suspension system and perimeter trim components required to create the cloud.

SoundScapes Shapes are one-piece clouds featuring a variety of standard and custom shapes and colors, and can be used as individual units or grouped together to create unique visual configurations.

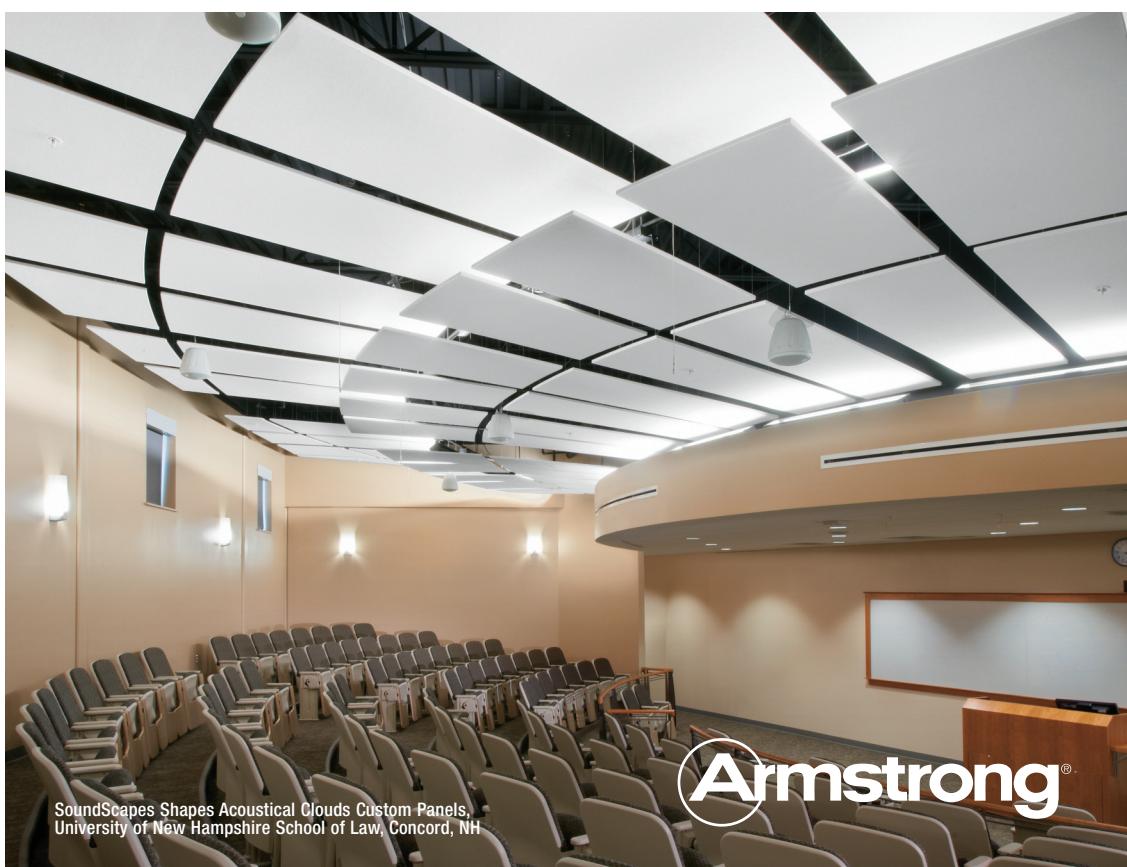
Acoustically, ceiling clouds can actually provide more sound absorption than a continuous ceiling of the same surface area because sound is absorbed on both the front and back surfaces of the cloud.

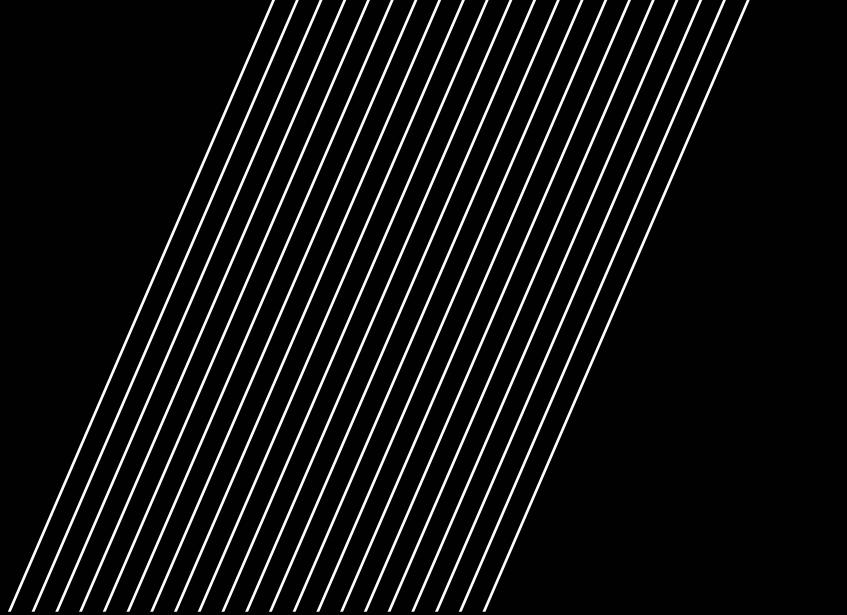
SoundScapes acoustical canopies also help reduce reverberation in the space below them, but are much different in size and look compared to panelized acoustical clouds like Formations. For example, cloud systems are available in unlimited sizes, while acoustical canopies are only about 4' x 6' in size. Visually, acoustical clouds are flat, while canopies are available flat or curved and can be installed as hills or valleys.

### Quiet classrooms

The establishment of ANSI S12.60 for Classroom Acoustics and LEED for Schools provides clear design goals for both planners and architects. They also raise awareness of the learning problems associated with poor acoustics and, hopefully, eventually eliminate design problems from being repeated as new schools are built.

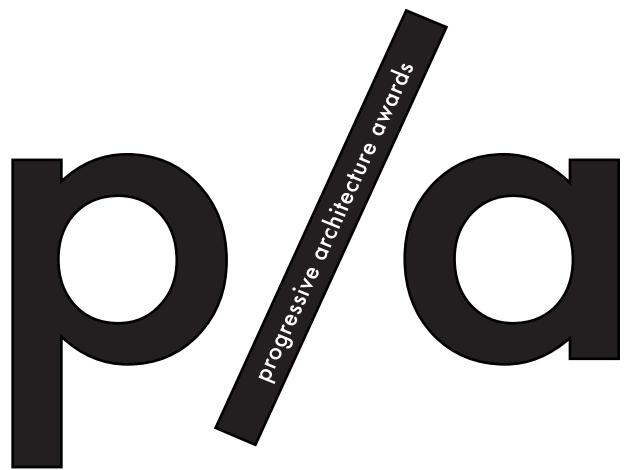
The Armstrong ceilings needed to design and build classrooms for high acoustic performance exist. Choose them properly to ensure that any newly constructed or retrofitted classroom provides an acoustic environment that enhances the learning experience for students and teachers alike.





## CALL FOR ENTRIES

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### DETAILS

Projects must have a client and a completion date after January 1, 2013. Judging will take place in November 2012. Winners will be notified in December 2012 and published in the February 2013 issue of ARCHITECT, and honored at a ceremony in New York the same month. For more information and rules and regulations, visit [paawards.com](http://paawards.com)

### DEADLINES

**Regular:** October 26, 2012

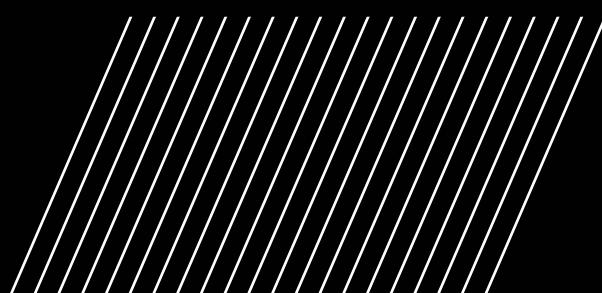
**Late:** October 31, 2012 (additional fee required)

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## A TALK WITH ...

*Vanity Fair* critic Paul Goldberger discusses winning the Vincent Scully Prize, profiling Frank Gehry, and embracing Twitter.



**What does the Building Museum's Vincent Scully Prize mean to you?**

Scully was my teacher, and one of the greatest influences on my viewpoint. I not only learned a lot from him, I really felt profoundly shaped by his outlook in so many ways. To win an award that carries his name does have special meaning for me. One important thing I learned from him is that it's okay for a serious scholar or thinker to change his mind.

**What is an example of a building that you changed your mind about?**

I think I was much too forgiving of [Philip Johnson's] AT&T Building, now the Sony Building. I don't think it's really stood the test of time very well. In almost every case where I've changed my mind, and there are not that many, I think I've made the mistake of being too willing to respect good intentions and not tough enough on the results.

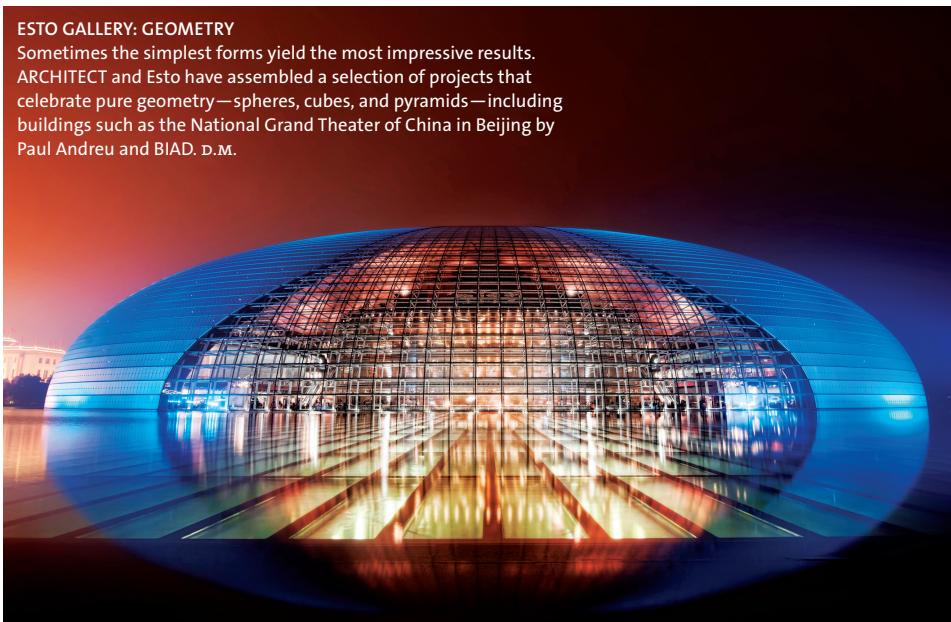
**Where are you with your biography of Frank Gehry?**

Very deeply into research. Just beginning the writing. I'm yearning for the day when I can start writing about architecture since I'm now writing about his grandmother and things like that. I'm just interested in doing different things than what I've done before. It's great to have new challenges. I wanted to do this not just because of Gehry and the fact that his work interested me, but because I've never written a biography before. Narrative—telling stories—interests me more than it used to.

**In a recent talk, you said that Twitter is an amazing medium for talking about architecture because some buildings don't need more than 140 characters to discuss. Did you mean that positively or negatively?**

It can be both positive and negative. I didn't mean that Twitter was useful only for that—or that it's in any way a substitute for more serious writing. In no possible way do I consider these things a substitute for the traditional long-form essay—which is still the heart of criticism. God help us if we think Twitter is the equivalent of that. **k.c.**

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**ESTO GALLERY: GEOMETRY**

Sometimes the simplest forms yield the most impressive results. ARCHITECT and Esto have assembled a selection of projects that celebrate pure geometry—spheres, cubes, and pyramids—including buildings such as the National Grand Theater of China in Beijing by Paul Andreu and BIAD. **D.M.**

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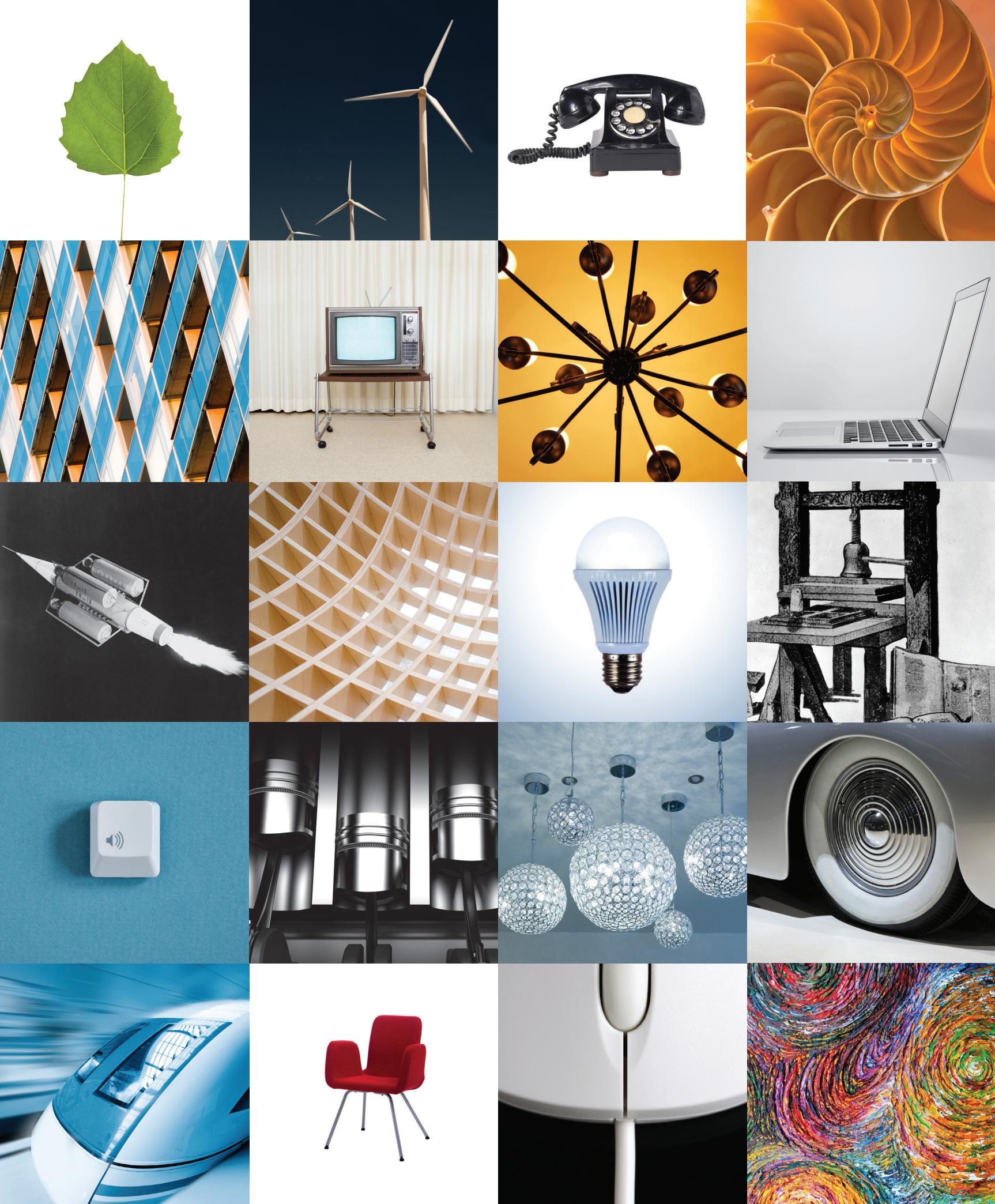
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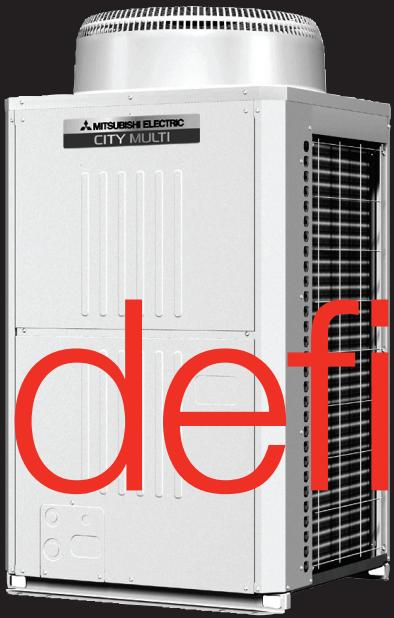
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# PRODUCTS



## IRIS

Design studio **MacMaster** may have a London showroom overlooking the Thames, but the real work takes place in its workshop in pastoral Worcestershire, England. Founder Alex MacMaster crafted the curved petals of this floor luminaire from laminated FSC-certified wood to emulate its namesake flower.  
[macmasterfurniture.com](http://macmasterfurniture.com)  
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**LAS VEGAS ROCK**

The Strip isn't the only rocking scene in Las Vegas. Since the 1930s, **Las Vegas Rock** has been extracting meta-quartzite from a 920-acre quarry in the region. Available in several textures and colors, the durable silica-bonded quartz can be used indoors, outdoors, and in wet environments. [vegasrock.com](http://vegasrock.com) Circle 101

**TERRA LEGNO**

This FSC-certified, engineered-wood flooring comprises nine layers of coatings to resist UV light and abrasion, seven layers of Russian birch alternating in grain direction for dimensional stability, and a hardwood veneer. **Terra Legno** claims to extract up to three times more square feet of flooring per tree than conventional products. [terralegno.com](http://terralegno.com) Circle 103

**CHOPU SEAT**

When **O'Hara Studio** cofounder Sean O'Hara finalizes a design, he travels to Indonesia to train a group of master craftsmen to produce the sculptural furniture or product. The shape of his seating piece **Chopu**, inspired by the name of the surfer-coveted Tahitian wave, emulates the movement of water. Comprising multiple layers of wood that form a radiating pattern, this indoor bench stands 15" tall, 38" wide, and 31.5" deep. [oharastudio.com](http://oharastudio.com) Circle 102

**PORT & CAPE COLLECTION**

**LoomSource** pored through the archives of residential textile designer Hable Construction to assemble this collection of 14 bestselling and new patterns (Ropes and Big Beads shown). Made from polyolefin-blend Bella-Dura, the textiles are suitable for high-traffic areas indoors or outdoors and can be recycled at their end of life. [themomgroup.com](http://themomgroup.com) Circle 104

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## ARCHITECTS' CHOICE

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Text by Brian Libby

Illustrations by Peter Arkle



## OBJET EDEN350 (ABOUT \$150,000)

The New York office of Dutch firm Rietveld Architects decided to invest in the top-of-the-line Eden350 printer despite the fact that a third party could likely produce the same models for less money. "You can only reach the maximum results if you are as close to it [the printer] as you can possibly be," says Rietveld's senior 3D expert Piet Meijis, Assoc. AIA. "If you send it out to a service, you will always play it safe. It doesn't allow you to experiment. When we make a model, we can have as little as 10 percent done and send it to the printer for evaluation. And we can print many different versions."

The best models require experimentation, Meijis says. "When you create a model of a building, you have to scale it down 1,000 times or 500 times. So what you do as a model-maker is create a caricature of the model. A mullion 2 inches thick, in reality, has to be 3 feet wide to be readable. We have to be able to experiment with different designs for the model."



## DIMENSION SST 1200ES (\$30,000–\$40,000)

New York firm FXFowle made a relatively modest investment in the Dimension SST 1200es printer, which uses fused deposition-modeling technology to melt strands of plastic to form the model's printed layers. The firm also augments its printing by outsourcing to the 3D-printing service NRI (see "Sticker Shock?" at right). "It depends on what kind of model we want to show the client; the budget and time frame also always matter," says Kaz Adachi, who heads the firm's fabrication shop. "We use the Dimension sometimes for presentation purposes and sometimes for study purposes. It's decent, but it's not great if you want to go less than 1 millimeter or  $1/32$  scale."



## OBJET30 PRO (\$20,000)

Pelli Clarke Pelli's main office in New Haven, Conn., has four printers at its immediate disposal: the Objet30 Pro (formerly named the Objet Alaris 30U); 3D Systems' Spectrum ZPrinter 650 (\$70,000); 3D Systems' Spectrum Z510 (now discontinued); and the Dimension SST 1200es. "Every project demands lots of study," associate Wesley Wright says. "The more avenues we can take to evaluate a design problem, the better."

The Objet30 Pro appealed to the firm because of its ability to produce transparent plastic model pieces that can simulate windows. Meanwhile, the Spectrum ZPrinter 650 uses a gypsum-powder composite to create finely layered models, which are acceptable for study and display. As a more automated 3D printer than others, it also requires less input and, thus, less time to use, Wright says.



PIET MEIJIS

Senior 3D expert  
Rietveld Architects



KAZ ADACHI

Model shop manager  
FXFowle



WESLEY WRIGHT

Associate  
Pelli Clarke Pelli

## STICKER SHOCK?

If your firm can't justify forking over the cost of a new car—or five—for a 3D printer, then you have two affordable alternatives: outsourcing to a 3D-printing service or buying an entry-level 3D printer.

"A large part of being a designer is spending the time doing the design and not other things," says Justin Levitz, a New York-based manager of 3D technologies at NRI (nrinter.com), one of many online companies that specializes in printing 3D architectural models; other service providers include Lgm (lgmmodel.com) and Solid-Ideas (solid-ideas.com). Brick-and-mortar shops exist, too, such as Solid Image 3D (solidimage3d.com) in the greater Los Angeles area.

The lower-end 3D printer market is becoming a more viable option for architects. Though the level of detail and refinement is lower than their costlier counterparts, these entry-level printers may be suitable for study models. For example, MakerBot (makerbot.com) offers the Replicator for about \$1,750.

But lower-end models can also require extensive trial and error, says Geoff Sosebee, a designer for Portland's Boora Architects and the former head of the fabrication lab at the University of Oregon School of Architecture. "Architecture firms don't necessarily have time for that. That said, a couple new printers are coming out that are sub-\$5,000, which I think will change the market. The output will be more controllable and of higher quality, with less up-front investment."

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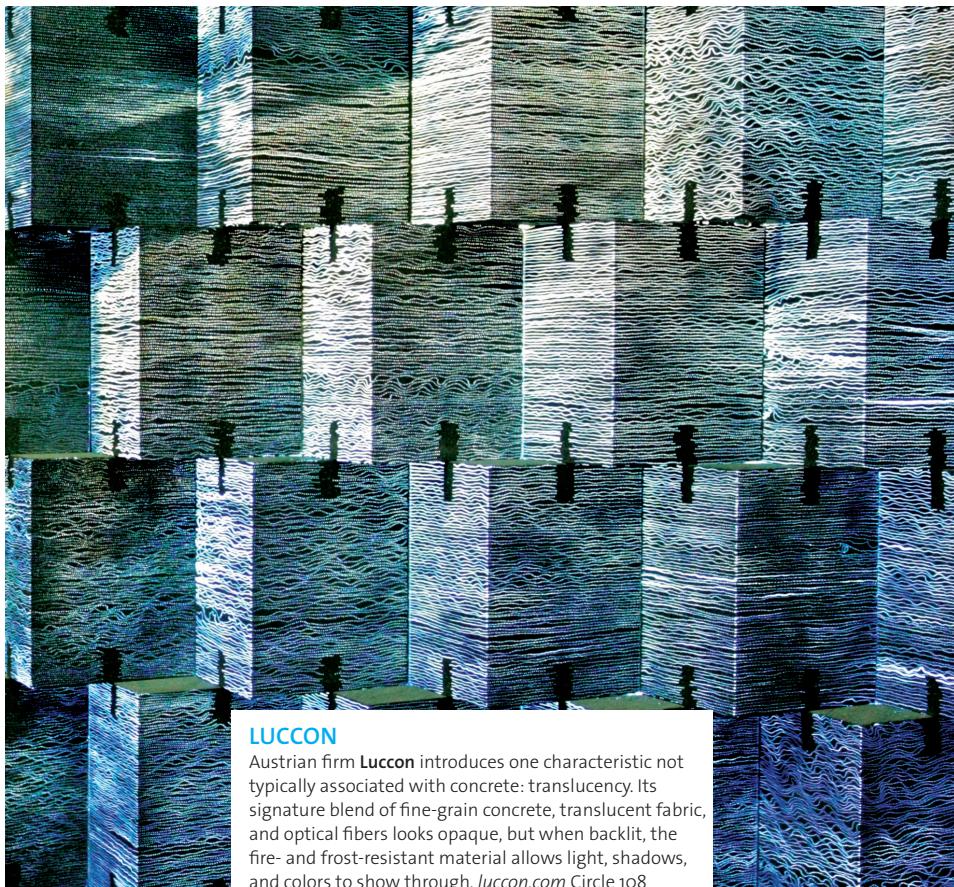
For San Francisco furniture company **Council's** inaugural outdoor collection, Eric Pfeiffer of Oakland, Calif., design studio Pfeiffer Lab chose to go with a contemporary take on the Adirondack chair. A white, powdercoated steel frame supports the chair's curved profile, which is made from weather-treated pine slats. Four wood finishes are offered, including natural (shown). Unlike its traditional counterpart, the Plank Lounger can come with or without arms and still pull off an air of elegance. [councildesign.com](http://councildesign.com) Circle 105

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**REGAL HARDWARE COLLECTION**

The city of Scranton, Pa., serves not only as the hometown for Vice President Joe Biden and *The Office*, but also for bathroom partition and locker manufacturer **Scranton Products**. Available in three colors (frost shown), the collection comprises a hinge (shown) and slider latch that add a sense of design to the often-overlooked and abused hardware pieces. [scrantonproducts.com](http://scrantonproducts.com) Circle 107

**LUCCON**

Austrian firm **Lucon** introduces one characteristic not typically associated with concrete: translucency. Its signature blend of fine-grain concrete, translucent fabric, and optical fibers looks opaque, but when backlit, the fire- and frost-resistant material allows light, shadows, and colors to show through. [lucon.com](http://lucon.com) Circle 108



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## DETAIL

# Reading Between the Lines

BELGIAN DESIGN FIRM GIJS VAN VAERENBERGH MERGES LANDSCAPE, HERITAGE, AND RELIGION IN AN ART INSTALLATION THAT IS 90 PERCENT AIR.



Text by **Wanda Lau**

Sited on a popular walking path in the rural town of Borgloon, Belgium, the metal installation *Reading between the Lines* has become a local attraction as well as an impromptu stop for rest and reflection. Visitors can enter the 3-meter-by-8-meter (9.8-foot-by-26-foot) sculpture, which consists of two rooms.

**A CHURCH CAN BE the crux of one's life, or simply a physical structure that blends into its surroundings. This range in meaning serves as the basis for *Reading between the Lines*, an art installation by design firm Gijs Van Vaerenbergh.**

Architects Pieterjan Gijs and Arnout van Vaerenbergh won a competition, held by Belgian art museum Z33, to create a public space in Borgloon, Belgium, that addressed the town's relationship with its churches.

Though only half of the town's 24 churches are still in use, van Vaerenbergh says, "everybody recognizes them and sees them as the center of the community. They are landmarks in the landscape." The duo experimented with transparency by crossing the church experience with the landscape experience.

Nestled in a picturesque valley along a popular walking trail, the site allows visitors to see the installation from different elevations and scales as they move closer or farther away.

After considering fabric and concrete, the firm decided to use Cor-Ten steel. "It was quite logical in a way," van Vaerenbergh says. Not only could the oxidized metal weather the elements, but it also allowed the pair "to reduce the volume of our sculpture to a minimum such that only the essential part of it was left."

A nearby church provided the base shape and proportions. "We wanted to refer to the most psychological form of a church," van Vaerenbergh says. A laser scan captured the building's dimensions, from which the architects created digital and physical models. "We started with the full form of the church and then started cutting it," van Vaerenbergh says. The ratio of 1 centimeter metal to 9 centimeters of opening maintained the typological form while allowing the landscape to show through.

# 1:3

The scale of the *Reading between the Lines* installation in relation to the local church after which it was modeled.

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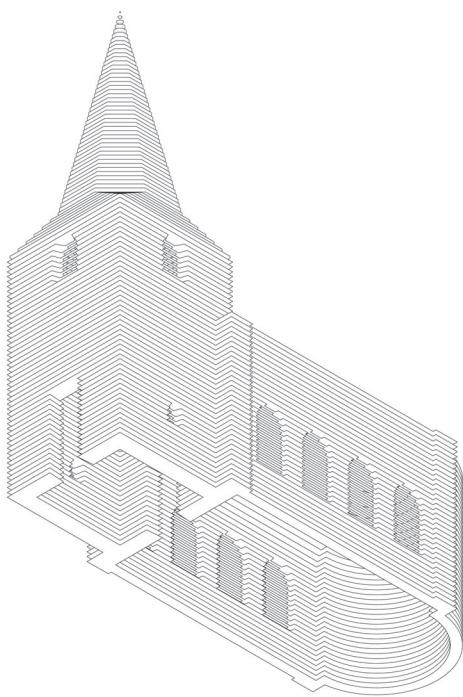


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The 10-meter-tall (33-feet-tall) sculpture could easily divide into 100 10-centimeter-tall layers. It also meant that the team had to create 100 plan drawings for Belgian metal fabricator Cravero. Each plan was marked with the locations of the approximately 2,000 spacers, or columns, that hold the metal layers afloat. The team directed its software programs—Rhino and Grasshopper—to space the columns every 10 linear meters, plus or minus 15 centimeters.

Seven weeks after submitting its drawings to Cravero, the team received the 33 tons of laser-cut metal pieces. Though each piece was numbered, organizing the layers—which could comprise multiple pieces if the layer included the piers between windows—took one week. Shop-welding the layers and spacers together into groups that a crane could then hoist into place on site required another three weeks.

The team's extensive planning efforts paid off. On installation day, Sept. 24, 2011, "We started early in the morning, and the pieces were already there," van Vaerenbergh says. "We ended before dinner."

Visitors have brought their own preconceptions to analyzing the installation's meaning. "Some people say, 'Ah, finally, a transparent church!'" van Vaerenbergh says. But the piece, he says, isn't intended to make any religious statement. Instead, the "space in between the form is [meant] to leave room for interpretation."

**VERSICOLOR**

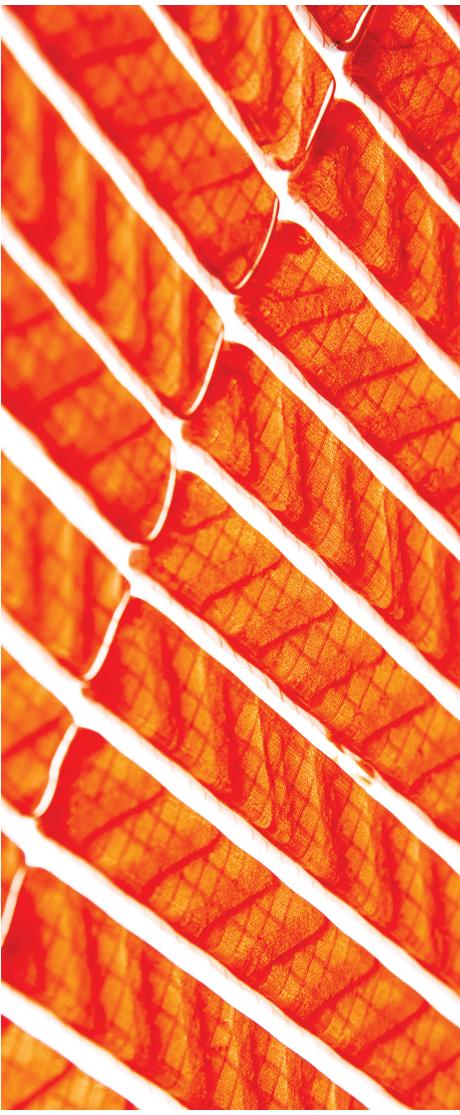
To create this durable finish option, **Meltdown Glass Art & Design** hand applies vitreous enamel panels to kiln-fired glass. Available in five colors (yellow shown), Versicolor can be applied to any glass texture and thickness offered by the studio. [meltdownglass.com](http://meltdownglass.com) Circle 109

**TATAMI**

**Interstyle Ceramic & Glass** began as a ceramic tile distributor and manufacturer in 1977, but switched its focus to decorative fused-glass wall and floor tiles six years later. Tatami, which is part of its 2012 collection, features embossed  $1\frac{1}{2}$ "-by-4" glass batons mounted on 12"-square mesh sheets. It comes in 12 colors, with a crimp or cable (shown) texture. [interstyle.ca](http://interstyle.ca) Circle 110

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The sixth generation of **GKD Metal Fabrics**' stainless steel-mesh cladding, which turns indoor or outdoor facades into a dynamic digital display, uses six LEDs to form each pixel. As a result, the mesh delivers less power to each individual LED, extending its life span while producing an output visible from nearly 140 feet away. [gkdmetalfabrics.com](http://gkdmetalfabrics.com) Circle 111



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The climbing tower and high-ropes obstacle course at MountMitte, an adventure park in Berlin, offers an adrenaline rush for anyone 7 years and older.

**ABOUT ONE-THIRD OF YOUTHS** and two-thirds of adults in America are overweight or obese. Although we have attributed our bulging waistlines to many factors, such as diet and genetics, the designed environment rarely receives the finger pointing. Our automobile-dependent suburbs and sedentary learning and work environments help us average more than 20 hours per day indoors. Designers have an opportunity—if not a responsibility—to encourage healthier lifestyles.

One solution may be found in the worldwide parkour, or “freestyle,” movement. Founded in the 1920s and further developed by French athlete David Belle in the 1980s and '90s, parkour regards buildings and urban environments as playgrounds and obstacle courses to be traversed in the most efficient manner possible. Acrobatics are often involved, but equipment is not; even shoes may be considered excessive.

Architecturally, parkour defies established mores about recreational spaces. Although the sport has dangerous elements, the fitness opportunities it proffers and its tangible connection to architecture deserve attention.

Several projects demonstrate the potential of urban freestyle. **MountMitte**, a parkour mecca in Berlin, is an urban playground on steroids: a multidimensional, multifaceted obstacle course complete with zip lines, barrel runs, and suspended cars. This 1,000-square-meter (10,764-square-foot) adventure park by German design firm **Inhaber + Bau Kristall-Turm** will pique the interest of even the most sedentary teenager or adult.



Text by Blaine Brownell  
Illustration by Peter Arkle



## THE BIG LEAP

Some architects have already embraced the merging of architecture and activity. The 2009 film *My Playground* ([kasparworks.com](http://kasparworks.com)) documents the stunning and heart-palpitation-inducing adventures of professional parkour firm Team JiYo at Bjarke Ingels Group's Mountain Dwellings. And yes, Ingels—a self-professed parkour fan—appears in the video.

30

The body mass index (BMI) at which an adult is considered obese. A 5'4" adult weighing 174 pounds as well as a 5'9" adult weighing 203 pounds fall into this classification.

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## Steel Framing for Composite Decking A Next-Gen Solution

By: Kathy Price-Robinson



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### LEARNING OBJECTIVES

By the end of this educational unit, you will be able to:

1. List the benefits of steel deck framing.
2. Discuss design and planning with steel deck framing.
3. Describe the steps and options for installing steel deck framing.
4. Identify the finishing touches for this new building product.

From homes to docks to public walkways, the emergence of composite boards more than 20 years ago transformed and shifted the decking industry. Composites started out with a single digit share of the market when compared to wood, increasing from 2% in 1999 to 24% in 2010. However, one factor in the deck assembly did not see a change: the framing. So while architects and builders specified or installed composites that would not twist, splinter or get eaten by termites, most frames were being built with the same old wood. While deck substructures are a \$1.9 billion market that remains primarily composed of pressure-treated lumber, the status quo is starting to shift as steel framing enters the mainstream market.

If you think about it, the substructure of a deck is the heart of a deck's durability, the basis for its aesthetics. You could say the old way, the wood way, is putting a high-performance decking on top of a low-performing foundation. As with any innovation, questions arise.

- What is this product?
- Why does an architect choose to specify it?
- How does a builder install it?

This education unit will answer those questions. Let's begin with the benefits and features of steel deck framing.

### BENEFITS OF STEEL DECK FRAMING

The benefits of steel deck framing become evident when contrasted with the shortcomings of wood framing. With deterioration from weather, moisture, time and pests, wood framing can twist and warp, flaws which transmit to the surface decking. No matter the high quality of the decking boards, the overall appearance and functionality will become compromised. With the stability of steel, this new type of framing eliminates those problems. In an article in Professional Deck Builder, Robert Shaw, who owns Colorado Deck and Framing in Colorado Springs, wrote that while decking material has come a long way in recent years, "I don't think the quality of framing materials has kept up, and it seems



**Case study: Apartment Complex Decks** The Challenge: Property managers at Ryan's Run West Rental Community in Maple Shade, New Jersey, were faced with replacing small, aging and decrepit decks on 160 apartment units for the third time in about 30 years. They sought a solution that was cost effective and long term. Over the years, the wood had shrunk, warped and twisted so much that some of the 6 x 8 decks were sloped away from the building. Property management sought a replacement more durable than wood and one that would not have to be replaced in the next 10 years.

**The Solution:** Property managers had already considered using a composite decking material for the boards, and when they were introduced to a steel deck framing product that could be used for the substructure, they opted to rebuild the decks out of the longer-lasting and durable products. Choosing the steel deck frame met and even exceeded the property owners' needs. Neither the boards nor frame will rot or decay, remaining impervious to insects and termites. The products will create a stable and straight deck and will not warp or twist over time. The non-combustible nature of the product is an added boost in this apartment complex that hosts thousands of residents.

silly to put decking with a 20-year (or longer) warranty onto a wood frame that I doubt will last that long. Because of this, I've begun building decks using ... steel joists that allow me to offer customers a frame that will last as long as the decking I put on it," (Professional Deck Builder, March/April 2011).

**Additional Benefits of Steel Deck Framing**  
*Consistently Flat* — Steel framing equals a refined and consistently flat foundation on which to install deck boards. This eliminates that familiar yet tiresome exercise of shuffling through stacks of lumber for uncompromised boards.

During installation, there is no worry about which way to turn a crowning board.

*Remains Stable* — Query any deck builder and they will share myriad stories of composite decking boards that became wavy and uneven over time because of the instability of the wood framing underneath. When wood framing twists and warps, those impacts show up on the surface of the decking. In contrast, steel framing won't twist and warp over time, so the deck boards remain in place, resulting in fewer callbacks and sullied

reputations. Straight steel beams and joists below mean level decking above.

*Longer Spans* — Because of the strength of lightweight steel beams, longer spans between posts are possible. This gives the architect more flexibility in post placement, preserving views where desirable.

*Design Flexibility* — Curved decks, popular with owners and designers alike, are simple to create with a steel framing system. The process involves notching the flanges of a C-shaped header to allow it to bend. As most deck builders know, it's as difficult as it is time-consuming to bend wood. A curved deck topped by a corresponding curved railing or pergola makes a stunning design statement. Other designs made easy with steel framing include expanded cantilevers and angled corners.

*Easy to Install* — While the term steel framing might conjure up visions of heavy iron and blow torches, lightweight steel deck framing requires no special tools and cuts and installs as easy as wood, if not easier. If someone can work with wood, they can work with steel framing. According to the professional deck builder referenced earlier, moving steel deck framing components is much easier than moving around pressure-treated lumber.

*Nationally Available* — Steel deck framing is available on a national scale and is not a specialty item. This lessens the potential for delays during construction and keeps the job moving along.

*Non-Combustible* — Steel deck framing qualifies for extreme wildfire building codes under the International Code Council (ICC) – Wild Land Urban Interface (WUI) building material requirements. That makes it a good choice for areas of high-density housing and frequent wildfires, eliminating one more combustible item on a home's exterior.

*Termite/Insect Repellent* — While extreme measures are taken to dissuade insects from eating fibers in wood used for decking boards, those measures are not necessary with steel framing. Insects



### Case Study: College Campus Walkway

*The Challenge:* To create a serene walking path on a busy private college campus in the Western United States that would prove to be wear-resistant, protect the fragile surrounding environment, and provide a lovely spot for student and alumni gatherings. Because of the pond and wildlife in the area, it was a popular place where students and nearby residents socialized. But the activity took a toll on the root system of the fragile Cypress trees and on the banks of the pond, which were eroding.

College officials sought to build a 2,200-square-foot boardwalk-type walkway around the pond that would not rot or decay over time due to its proximity to water, the chemicals in the water, or from insect or termite damage. They wanted

a product that was stable and strong enough to withstand the thousands of weekly visitors while, at the same time, would protect the environment.

*The Solution:* Upon learning about a steel deck framing option offered by the same company that manufactured the selected composite decking boards, university officials decided to use this product to gain the stability, durability and flat, straight surface that couldn't be achieved with wood. They also were impressed with the 25-year warranty that accompanied the steel deck framing. The product proved easy to install and, as importantly, was compatible with the helical piers that the builders chose to use instead of concrete footers in order to provide extra protection to the tree roots. There is a high level of satisfaction with the results.

cannot eat it. This strength protects the deck from rotting and, therefore, the tragedies that oftentimes follow from unexpected collapse.

#### SUSTAINABLE FEATURES OF STEEL DECK FRAMING

These features may appeal to architects and builders who cater to environmentally conscious homeowners, and may contribute to LEED points:

*Long Lasting* — Galvanized, dual-coated steel lasts longer than pressure-treated

lumber, eliminating callbacks and the cost of replacing or repairing wood framing.

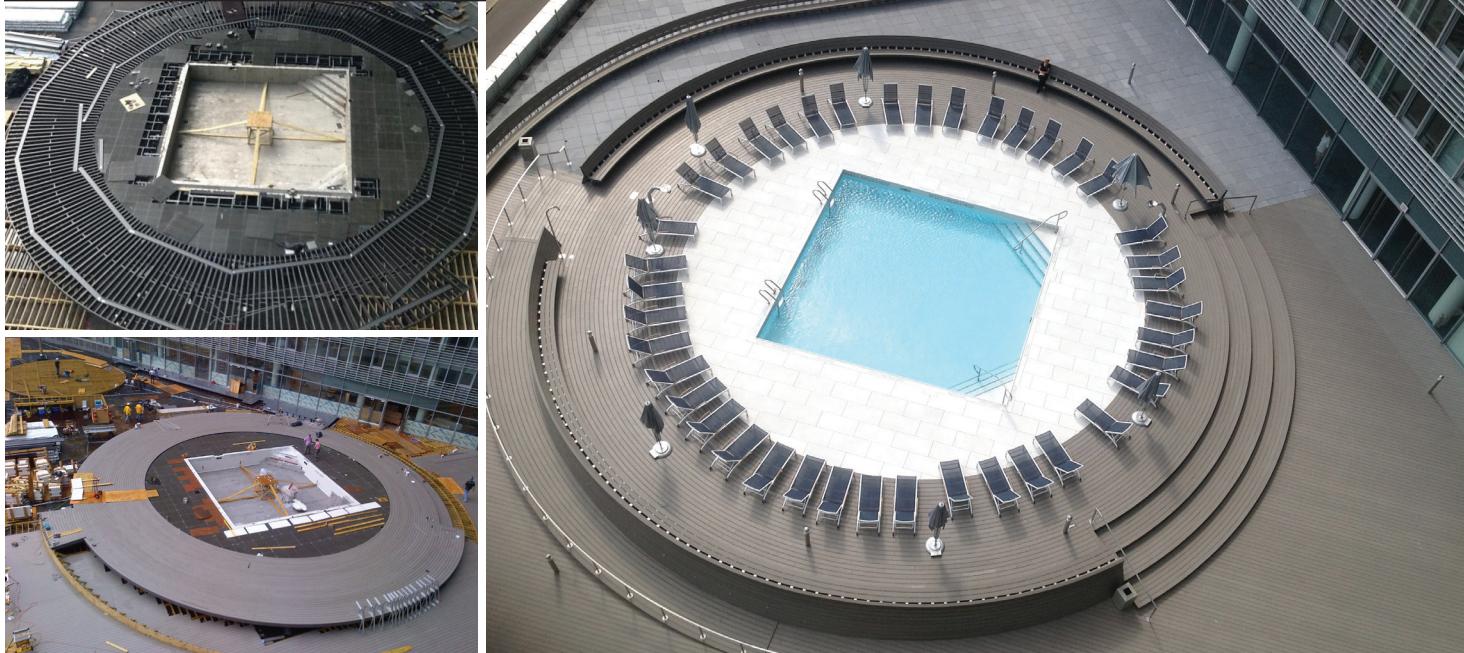
*Recycled Content* — Steel framing components may contain 25% recycled content which could contribute toward LEED points.

*Recyclable* — Check with the framing manufacturer, but steel framing waste may be 100% recyclable. And in the event that the deck project is eventually torn down, the steel substructure can be returned to the recycle stream and possibly repurposed.

*Chemical Free* — Unlike pressure-treated lumber, which is infused with volatile chemicals to protect it from pests, steel is chemical free. Even without LEED points, or points from other green building rating systems, a chemical-free building material will appeal to clients trying to minimize chemicals in and around the home.

#### DESIGNING AND PLANNING STEEL DECK FRAMING

Not all designs will be as large or complex as a rooftop pool surround, but before one designs or builds a deck, it's



### Case Study: The Mercedes House Rooftop Deck

**The Challenge:** Two Trees Management Company, a multi-billion dollar residential developer in New York City, sought a product that would meet required fire codes in the construction of an elevated deck project on the fourth-floor set-back roof terrace of an 850-unit luxury condominium and rental complex on the Upper West Side. Fire codes would not allow the company to use pressure-treated wood for the entire 36,000-square-foot terrace, so they elected to incorporate steel deck framing to support the 80' diameter outdoor wading pool deck.

**The Solution:** Lightweight steel deck framing offers several benefits. It is a highly stable material that provides a uniform grid onto which the curved deck plants can be fastened. The complex deck design has an outboard circular edge that was

easily framed by using the C-channel style track material. The steel deck framing also contributed to the building's LEED points for recycled content and local sourcing of the steel framing.

Finally, with such a large investment being made in the pool deck itself, opting to use steel will extend the lifespan of the installation well beyond what could be expected of wood, further protecting the \$1.3M investment. In the event that the deck is torn down, the steel framing can be recycled back into the product stream. This showcase project, built on top of the building that houses the flagship Manhattan Mercedes dealership at 11th Ave. and 53rd St., incorporates more than 2,000 curved 8-foot deck planks that were custom bent to conform to the circular pool deck and bench surround. It is the visual focal point of this rooftop wonder.

helpful to review design options and considerations. While an all-wood deck may deteriorate and require replacement in just a few years, as was the case at the apartment complex, a deck on a steel frame will last much longer. Therefore, more care should be given to the design. Here's what to think about:

#### Design and Build to the Space

In a smaller space, designing a multi-level deck to make use of vertical space should be considered. Double-check local building codes about setback requirements first. The space under a deck can be used as well, as a patio or

storage area (however grills should not be used under decking areas due to ventilation and fire hazards). In a large backyard, the possibilities are limitless — multiple levels, pergolas, gazebos, and sweeping curves are all possible. Distinct activity areas could include a garden, grilling station, or a pool. Irregular spaces can benefit from the flexibility of curved decking space, which is easily attainable with steel.

In terms of size, some common rules of thumb for deck designers and builders include:

1. A deck should be no larger than 20%

of the house to which it is attached.

2. No single section of deck should be larger than the largest room in the house. This is where different deck sections and heights are most compatible with a smaller house.
3. A deck area that includes a dining space will most likely be the largest portion of a multi-section deck. The recommended space for a table and chairs should be at least 12' x 12'.

This article continues on [www.hanleywooduniversity.com](http://www.hanleywooduniversity.com). Go online to read the rest of the article and complete the corresponding quiz for credit.

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## AIA VOICES

COMMUNITY BUILDER | RESEARCH AND THE PUBLIC INTEREST

*While pursuing his doctorate at Columbia University Teacher's College, Roger Keller, AIA, focused on the influence that the architecture of award-winning schools has on student achievement. Keller's interest in the impact of architecture on communities blossomed from there. Since 2008, he has served as town supervisor of Bridgeton Township, Pa.—a role, he says, where "my architecture training has been useful within the general nature of moving people towards a common goal."*

**SCHOOL SPACES HAVE A HUGE EFFECT ON KIDS. SCHOOL IS A KIND** of home in which all of their growth—emotional, physical, and intellectual—plays out. It's a social place, it's a place of learning, and it needs to feel like a home environment. But drawing a line between pedagogy and design is a complicated thing: How does one organize space to support curricular standards? My research focused on schools that trended toward the progressive house-plan organization, where larger schools are broken down into smaller learning communities that foster an interdisciplinary understanding of course material. The house-plan design has been prevalent in middle-school education for some time, and it allows for spontaneous learning, small group interactions, and a variety of teaching opportunities. In design, learning stairs, window alcove seating, and glass walls not only allow visual communication within learning spaces, but also assist with wayfinding. However, these

same areas where students gather—often without adult supervision—also pose security concerns, as do spaces that look out onto a vista from which a person on the outside has a straight visual line to the interior of a school. Security has to be part of the conversation early on, along with pedagogy. But I hope that the open-school concept can find a way forward.

In my research, I looked at how students performed on state exams and balanced that against the design intentions. Causality is very hard to prove, but you can at least say that there's a relationship between design and achievement. From the qualitative side of the study, the positive energy in the award-winning schools was hard to ignore. Students, teachers, administrators, and even township officials spoke animatedly about their schools—underscoring the positive connection between the community stakeholders and the architects as design leaders, rather than design accommodators. The question of what a school should be like has to be one that the architect and the community explores together.

I have always been interested in this idea of educating the public about the value that quality architecture brings to a community and to our everyday lives. What I've tried to do in my work as an architect, teacher, and now head of a town is to find out what makes a community work, and do my best to help that along. —As told to William Richards **AIA**

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Anniversary  
Oct. 12-13

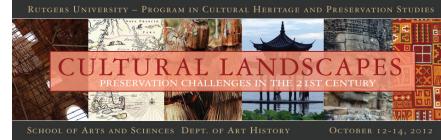


### Archtober

Architecture  
and  
Design  
Month  
New  
York  
City  
October  
2012

5 Fall into  
Architecture  
Cultural Events  
Oct. 1-31

1 Marking Space and Time  
Conference  
Oct. 12-14



**1 Marking Space and Time.** Forty years ago, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) held the World Heritage Convention in Paris that sought to protect monuments, building groups, and sites from development. Since 1972, 189 countries (out of 193 U.N. members) have ratified the convention. Marking that anniversary, Rutgers University will hold the conference "Cultural Landscapes: Preservation Challenges in the 21st Century," that will assess future preservation trends in light of UNESCO's list of World Heritage Sites—which includes 962 properties to date.

↗ Learn more at [chaps.rutgers.edu](http://chaps.rutgers.edu).

**3 College Park Celebration.** The School of Architecture, Planning & Preservation at the University of Maryland marks 40 years in its current building—designed by Charles Richter, FAIA—as well as gaining accreditation as a school. To kick off the celebration, the school is hosting two lectures: The first, on Oct. 12, will be given by environmentalist and scholar David W. Orr; and the second, on Oct. 13, is a series of talks on the challenges architects, planners, and preservationists face, as professionals and community builders.

↗ Learn more at [blog.aia-nj.org](http://blog.aia-nj.org).

**2. New Nordic.** Scandinavian design has always set a high standard for elegance and simplicity, but is there a way to characterize a "Nordic way"? Does a Nordic identity exist? Those questions and others are up for debate in "New Nordic: Architecture & Identity" at the Louisiana Museum of Modern Art in Fredensborg, Denmark, outside of Copenhagen. The exhibition, which draws examples from Denmark, Finland, Iceland, Norway, and Sweden, runs through Oct. 21.

↗ Learn more at [louisiana.dk/dk](http://louisiana.dk/dk).

**4 Shape Shifters.** The Heinz Architectural Center at the Carnegie Museum of Art in Pittsburgh has commissioned Dutch photographer Iwan Baan to document museums around the world that have bucked the white cube in favor of drawing landscape into art space. The show, "White Cube, Green Maze: New Art Landscapes," curated by Raymond Ryan, features six trendsetting projects, including Weiss/Manfredi's Olympic Sculpture Park in Seattle. Baan's portraits, which are accompanied by models, plans, maquettes, and renderings, are on view through Jan. 13, 2013.

↗ Learn more at [cmoa.org](http://cmoa.org).

**5 Fall into Architecture.** This month has been rechristened "Archtober" in several quarters of the U.S. to celebrate architecture and to engage the public in design issues. The critical mass of events takes place in New York, with more than 40 organizations hosting and orchestrating tours, lectures, demonstrations, and gallery shows. Join the Van Alen Institute, the Cultural Landscape Foundation, the Center for Architecture Foundation, AIA New York, and others each day this month to take part in this annual festival.

↗ Learn more at [archtober.org](http://archtober.org).

**6. Portlandia.** By the time the Independent Film Channel series *Portlandia* debuted in 2011, the Rose City had undergone a rapid transformation from sleepy Shangri-La for alt-culture into a hardcore architecture scene. Chronicling that change, the 2012 Portland Architecture and Design Festival features a series of tours, award programs, film screenings, exhibitions, and lectures that began last month and will conclude on Oct. 26. This annual festival is presented by AIA Portland and the Center for Architecture in conjunction with a number of area arts organizations.

↗ Learn more at [adfestivalpdx.org](http://adfestivalpdx.org).



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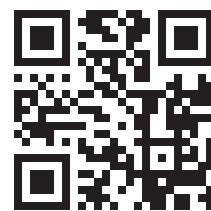
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# AIAADVOCACY

PENCILS DOWN



ILLUSTRATION: RANDY LYHUS

## *Being an engaged voter has never been easier for architects.*

**WITH EACH ELECTION CYCLE, THE STAKES ARE HIGH WHEN** it comes to future regulations that affect the built environment. And while architects may be short on time outside of their design duties, the AIA's DesignVote initiative has made it a lot easier to engage in the voting process.

DesignVote, which started in 2008, is an AIA initiative that provides details on local, state, and federal elections such as where and when the elections take place, and where candidates and sitting legislators come down on the issues that matter to architects.

"DesignVote is not an effort by the AIA to tell its members how to vote," says Adam Melis, director of political affairs and engagement at the AIA. "It's an effort by the AIA to help provide information related to the election." DesignVote does this by detailing legislators' voting history and Congress's bill sponsorship records.

Participation at the local level is integral to DesignVote's success. AIA chapters are on the front lines, ready to engage candidates early on and have them go on record about where they stand in regard to the built environment, explains Melis, who cites AIA Los Angeles as a good model for local chapter participation. Its Mayor Candidate Forums allow voters to probe a candidate on a range of issues, such as environmental and economic sustainability, resource conservation, enhanced mobility and access, community health, social justice, and planning for complete communities, says AIA Los Angeles executive director Nicci Solomons.

AIA Los Angeles also hosts a regular meet-and-greet breakfast and a Legislative Day at City Hall as a way to build relationships between civic leaders and members. AIA Indiana has had similar success with its AIA Indiana Days at the Statehouse program. "We've set up days

all throughout the legislative session, sometimes two or three days a week, when we are inviting our members into the statehouse where they literally become lobbyists for the day," says Jason Shelley, director of AIA Indiana/Indianapolis.

"I've been a registered lobbyist since 1997, so most legislators know me," Shelley adds. "But if I am able to bring in one of their constituents or voters who is an architect, [and] they are more interested in talking to one of them, then that's the beginning process of hopefully starting that relationship."

While some of these events are meant to engage current legislators, they also pay dividends in the future—especially when those lawmakers may move on to higher elected offices, Shelley says.

The involvement of up-and-coming architects is also key to DesignVote's efficacy. When younger architects participate in the electoral process, they are more likely to continue to participate over the long term. Melis outlines two ways that architects, interns, and architecture students can advocate for their profession: "One, volunteer in a campaign and let that candidate know that they are training or that they are an architect; and, two, volunteer for your local AIA chapter and say, 'I want to help organize events related to DesignVote or meet with elected officials.'"

"As a profession, architects need to be engaged, then help shape the rules they have to play by," Solomons says. "If architects aren't civically engaged, then they aren't going to have an easy time being architects." —Jennifer Pullinger **AIA**

↗ To learn more, visit [aiadesignvote.org](http://aiadesignvote.org).



# Well Rounded

*As hospital campuses grow, how can they simultaneously shrink their environmental footprints?* —BY BILL MILLARD

**WHEN AN OIL SLICK ALONG CLEVELAND'S CUYAHOGA RIVER CAUGHT** fire in 1969, it was neither the first nor the worst blaze of its kind. Oil fires have recurred for decades on numerous cities' rivers, says Christina Vernon, AIA, Cleveland Clinic's executive sustainability officer.

But the 1969 fire had good timing: Rachel Carson's novel *Silent Spring* had spurred the environmental movement in 1962, and seven years later, the public was ready to take the planet's degradation seriously. By then, the full array of urban-renewal-era pathologies prevailed in Cleveland: sprawl bred abandonment and unemployment bred crime. Corporations treated the city like a sinking ship, while hospitals and universities weathered the rough decades by staying put and, in many cases, expanding. Now, the Cleveland Clinic and other so-called meds and eds have found that institutional expansion and greening are deeply intertwined with their community's viability, and they are looking for ways to grow while staying green. Clevelanders point to the 1969 fire as a wake-up call and they hail the clinic, university hospitals, and other institutions linked with the Cleveland Foundation's Greater University Circle Initiative as revitalization catalysts.

The Cleveland Clinic is one of a few urban hospitals that is working to harmonize its expansion with the broader well-being of its community, understanding that sustainability, in a sense, begins, but does not end, with carbon footprints, checklists, and biophilic design.

But this has not always been a prevailing view. Even California's tough Title 24 energy standards, introduced as recently as 2008, classify hospitals as exempt. Yet with the 2009 development of the U.S. Green Building Council's LEED for Healthcare (HC) ratings, the growing use of the related Green Guide for Health Care, and the proliferation of like-minded groups such as the Healthier Hospitals Initiative, CleanMed, Practice Greenhealth, and Health Care Without Harm, hospitals and architects are not only raising the bar for energy performance but redefining sustainability as having a positive influence beyond campus borders.

Many hospital campuses rely on central utility plants to provide power. Some, particularly in the Midwest, have an entrenched dependence on coal-fired facilities to generate the necessary energy. Improvements to the physical infrastructure require a long-term approach to integrating municipal or, if it's a university hospital, institutional power sources. It is a master-plan issue as much as it is an engineering challenge, explains Benjamin Shepherd, associate director at the sustainability consultancy Atelier Ten. "Part of what we do is provide real energy forecasts for hospitals: 'Here's your demand now, here's where you're going, and here's what we think you can get down to with innovative environmental approaches to best service your remaining demand while planning for changing utility costs and regulatory environments.'"

At the Columbia University Medical Center, greening efforts address a dense mix of newer and aging buildings (some last renovated in the 1970s), deriving large gains from careful attention to central plant systems, says Rachel Futrell, associate director for energy

management and sustainability. "A lot of focus is always given to finishes, appearance, and bringing light in," she says, "and you want to make sure that the HVAC and mechanical-equipment side is not neglected in the process." Staff and patients may not notice upgrades to air-distribution systems (a vast opportunity for performance gains), chilled-water cooling systems shared between buildings, or replacement of No. 6 diesel with cleaner-burning fuels, but these details are the nuts and bolts of high performance.

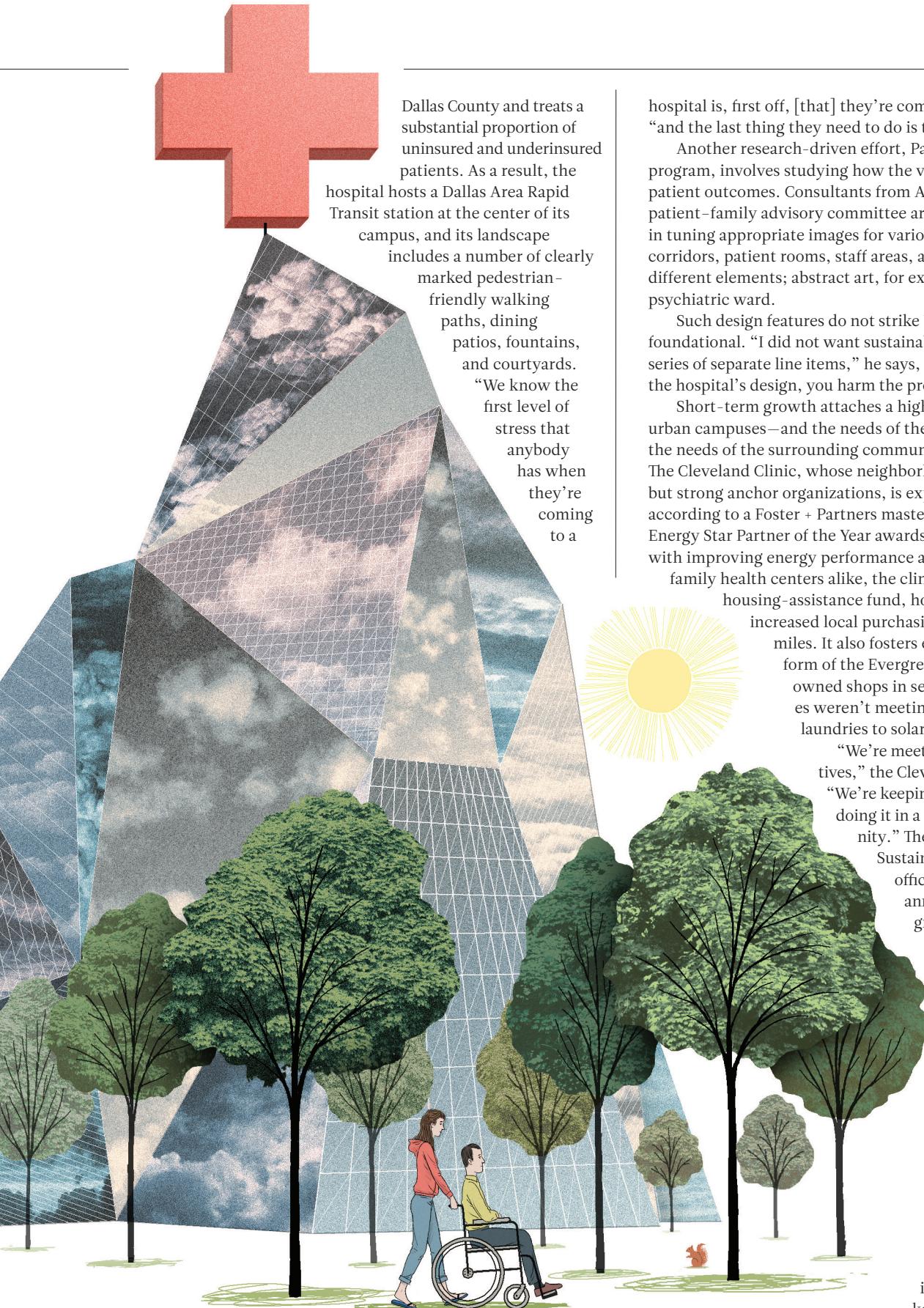
Incremental efficiency gains have substantial effects—as Robin Guenther, FAIA, Adele Houghton, AIA, and Gail Vittori argue in *Health Environments Research & Design Journal*—and the upfront costs of infrastructural improvements should not dissuade hospital executives from exploring green technologies that incorporate more daylight and fresh air. They also point out that, since staffing represents the lion's share of hospital expenses, environmental improvements are sound improvements, as they reduce sick days, boost productivity, and create recruitment incentives. As healthcare systems grow their physical plants, taking the long view in terms of energy consumption and sustainability has to happen if they are to be good neighbors. That idea applies to both suburban and urban campuses across the country.

Dallas's Parkland Memorial Hospital is expanding to a new \$1.27 billion, 64-acre, 865-bed, complex designed jointly by HDR Architecture and Corgan Associates. The hospital is targeting at least LEED Silver, "a handful of points away from Gold," says Walter B. Jones Jr., AIA, Parkland's senior vice president of facilities planning and development; it is scheduled to open in early 2015. The institution's "hospital-in-the-park" healing philosophy, Jones says, has been a not-too-literal metaphor for years, as Dallas County has grown around a site that was once considered "out of town."

Directly across the street, the new campus largely replaces demolished or transitioning industrial properties, so displacement problems have been minimal, Jones says. Parkland, which is a teaching hospital for the University of Texas Southwestern Medical Center, receives about 40 percent of its funding from



ILLUSTRATION: MICHAEL KIRKHAM



Dallas County and treats a substantial proportion of uninsured and underinsured patients. As a result, the hospital hosts a Dallas Area Rapid Transit station at the center of its campus, and its landscape includes a number of clearly marked pedestrian-friendly walking paths, dining patios, fountains, and courtyards.

"We know the first level of stress that anybody has when they're coming to a

hospital is, first off, [that] they're coming to a hospital," Jones says, "and the last thing they need to do is to get lost."

Another research-driven effort, Parkland's "art for healing" program, involves studying how the visual environment affects patient outcomes. Consultants from American Art Resources and a patient-family advisory committee are guiding Parkland's planners in tuning appropriate images for various areas of the campus, since corridors, patient rooms, staff areas, and specialty suites require different elements; abstract art, for example, is unhelpful in a psychiatric ward.

Such design features do not strike Jones as extraneous, but foundational. "I did not want sustainable elements to be split out as a series of separate line items," he says, "because if you remove it from the hospital's design, you harm the project."

Short-term growth attaches a higher premium on space for urban campuses—and the needs of the hospital are weighed against the needs of the surrounding community, often in a very public way. The Cleveland Clinic, whose neighborhood has economic challenges but strong anchor organizations, is expanding along a "green spine" according to a Foster + Partners master plan, which has earned it Energy Star Partner of the Year awards for the past two years. Along with improving energy performance at its main campus and smaller family health centers alike, the clinic has created an employee housing-assistance fund, hosted a farmers market, and increased local purchasing from vendors within 10 miles. It also fosters economic innovation in the form of the Evergreen Cooperatives, or employee-owned shops in sectors where existing businesses weren't meeting the hospital's needs, from laundries to solar energy.

"We're meeting our sustainability objectives," the Cleveland Clinic's Vernon says. "We're keeping it financially viable, but doing it in a way that involves our community." The clinic is also a prime mover in Sustainable Cleveland 2019, the city's official drive to become, by the 50th anniversary of its famous fire, "a green city on a blue lake."

Major hospitals need to communicate with a public that rarely understands the total scope of what they do and how they do it; a public that only associates them, perhaps unavoidably, with major health events. As institutions reshape themselves to handle public health needs that are now less about isolating the sick and more about promoting what keeps people well, it follows that their campuses should—and increasingly do—promote what keeps our environment and communities well. **AIA**



# AIAPERSPECTIVE

COMMON GROUND



PHOTO: WILLIAM STEWART

**IF YOU'RE RUNNING FOR OFFICE, CANVASSING FOR A CANDIDATE,** or simply participating in debates leading up to next month's elections, then read no further: You're doing your job as a citizen and as an architect.

For everyone else, here's an observation by 20th-century journalist H.L. Mencken on the election cycle: "If a politician found he had cannibals among his constituents, he'd promise them missionaries for dinner."

As a reader of the reporter and satirist, I find much to admire in his witty and frequently acerbic writings. Mencken was a master at skewering false pieties and hypocrisy, whatever the brand—secular or sacred. And surely around election time, there's much to skewer: the distortions, the crowd-pleasing appeals directed at our baser instincts, and the remarkable instinct of candidates to focus on trivial posturing when issues such as affordable housing, access to medical care, the decay of our nation's infrastructure, and climate change are hung out to dry.

Yet, once I get past the chuckle, I find myself parting company with Mencken's blanket criticism of the election process. I'm uncomfortable with the punch lines that slip too easily from laughter to a quality of cynicism, which frankly I find to be corrosive to a democracy. Yes, there's much to criticize in this, or any, election year. Running for office is a messy process. And how often have we been disappointed, heartbroken, or enraged by candidates who, once in office, become bloated with self-importance while simultaneously shrinking in size? The very saturation of the airwaves and the money being thrown at spinning narratives of exaggerated hopes and fears are enough to make one's eyes glaze over.

But as citizens and as architects, we can't afford to disengage. We can't allow ourselves to be seduced by cynicism even if, at times,

the choice may seem to be between the lesser of two evils. Tempting though it may be for an exhausted and disillusioned electorate to give up on government and simply tune it out, the last time I looked at our Constitution, it began with the words "We the People." Government is us. If it's not working as well as it should be, then we should be the ones to fix it. And, by the way, more architects should be in government.

Earlier this year, the historian John M. Barry published the book *Roger Williams and the Creation of the American Soul* about a man who played an extraordinary role in creating the United States. It's a book worth reading as we approach Election Day. Barry makes clear in the book that Williams did more than just settle the colony of Rhode Island and found the Baptist church in America: He defined by example the relationship between the engaged individual and government, and set the course for the great experiment that is America, an experiment that is tested and validated—or not—by the role we play as citizens. Read the book and be inspired by what one man was able to do against unbelievable odds. Thanks to him we have it easy, which ironically may be at the root of why so many people don't bother to engage in the crucial business of self-government.

But just because we have it easier than Williams, we can't take a pass when it comes to our responsibility as citizens. In the end, the greatest threat to the promise of America may not be politicians or missionaries—the greatest threat may be cynicism and indifference. **AIA**

Join our conversation at [aia.org/repositioning](http://aia.org/repositioning).

*Jeff Potter, FAIA, 2012 President*

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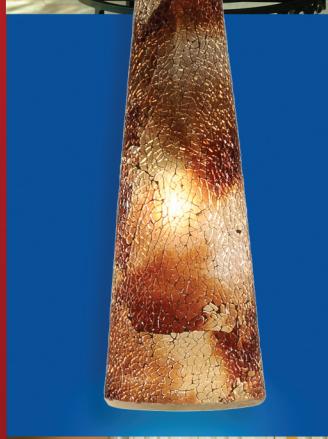
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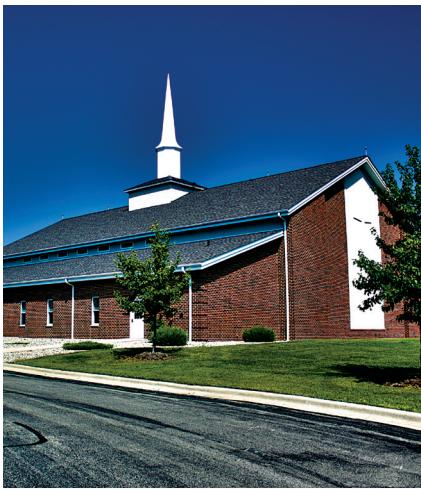
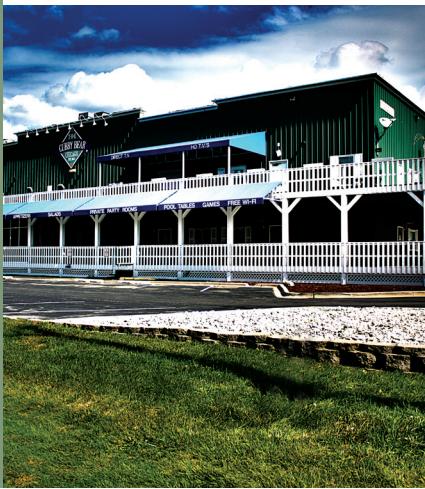


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# CENTER

Stanley Tigerman visits with new IIT dean Wiel Arets 68 Got graywater? An essential tool in the age of drought 82  
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Designed by KMD Architects, the Bertschi School Living Science Building in Seattle reuses rainwater and graywater to irrigate its outdoor and indoor gardens, respectively. Inside the school, a rumble that carries rainwater collected from the roof to a cistern doubles as a lesson in water conservation for students.



Q&amp;A

## MEETING OF THE DEANS

WIEL ARETS IS THE NEW DEAN AT IIT. STANLEY TIGERMAN IS THE UNOFFICIAL DEAN OF CHICAGO ARCHITECTURE. WHO BETTER TO SIT DOWN WITH THE DUTCH ARCHITECT AND DISCUSS HIS VISION FOR THE SCHOOL THAT MIES BUILT?

Edited by Eric Wills  
Photo by Noah Kalina

Tigerman (left) and Arets  
inside S.R. Crown Hall

**WEIL ARETS WAS NAMED** the new dean at the Illinois Institute of Technology College of Architecture in early August, succeeding Donna Robertson, FAIA. Hardly had he settled into his elegant new digs on the Ludwig Mies van der Rohe-designed campus, when ARCHITECT sent a welcoming party: Stanley Tigerman, FAIA, an architect with few qualms about dispensing his vigorous opinions.

Arets has no shortage of teaching experience, having served as dean of the Rotterdam-based Berlage Institute from 1995 to 2002, and having held positions at Columbia University, the Architectural Association (AA) in London, the Universität der Künste in Berlin, and the Architecture Academies in Amsterdam and Rotterdam.

Through his eponymous Amsterdam-based firm, which he founded in 1983, Arets currently has several high-profile projects in the works, including the Allianz headquarters in Zurich and the IJhal Centraal Station in Amsterdam. Meaning that Arets

will be racking up the frequent flier miles as he travels to and from Europe.

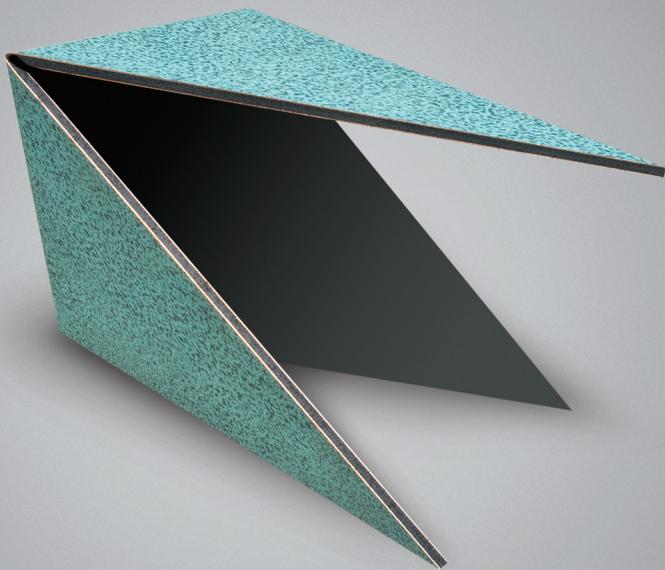
During an hour-long conversation in mid-September, Arets and Tigerman discovered that they are, in fact, neighbors—the Dutch architect just purchased a Mies-designed apartment on Lake Shore Drive in a building adjacent to Tigerman's. More significantly, they had a far-reaching discussion about architectural education at IIT and beyond, in what is sure to be the first of many meetings between these two Chicago deans.

**Tigerman:** You realize the reason I'm excited about your being here is, if I exclude Gene Summers for a second, you're the best architect since Mies to actually direct the school. You're aware of that.

**Arets:** That's your statement.

**Tigerman:** Yeah. It's something I actually believe. And I'm not trying to blow smoke up your ass to make you feel good. I truly

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I THINK AS A YOUNG ARCHITECT IT'S IMPORTANT THAT YOU ARE ABLE TO MAKE A STATEMENT, TO WRITE A BOOK, TO REALLY CONCENTRATE ON YOUR OWN WORK. IF YOU DO THIS IN A SCHOOL WHERE YOU HAVE PEOPLE LIKE STANLEY TIGERMAN, OR DANIEL LIBESKIND, OR REM, OR ZAHA, OR WHOEVER, THEN THERE'S DEBATE IN THE SCHOOL.

believe that. If you include Gene, who was also a wonderful architect, but he was utterly under the sway of Mies. All of which is great. But outside of the two of you, it's been a long time since something new and exciting has happened here. So why did you decide to do this, because you have a very flourishing practice in Europe?

**Arets:** Yes. We have offices in Maastricht, Amsterdam, Zurich, [and Berlin]. Yes, we have very good work. And sometimes things cross your path and then you start thinking about it. And of course I had been to Chicago when I was a young student. You had to visit Chicago. I came to Chicago and saw the work of Mies. I was born in the south of Holland. Mies was born 11 kilometers from the place where I was born.

**Tigerman:** Really? That close to Aachen?

**Arets:** Yes, I'm very close to Aachen. I was born in Heerlen, which is a city where the coal mining industry was happening. Mies left at the beginning of the flourishing of the mining industry. After that the area became very rich, became very exciting. Because it is where Holland, Belgium, and Germany are next to each other. But there is also lots of Spanish and French influence.

**Tigerman:** But then you went to school in Eindhoven [in southern Holland]?

**Arets:** I went to school at Eindhoven [University of Technology], then after that I was teaching in Amsterdam, Rotterdam, for one year, and then Alvin Boyarsky asked me to teach at AA in London. I thought he would like me to do a lecture or whatever, and then I did Diploma Unit 1 for five years, which was for me a very important time. I was nearly as old as the students were. So for me it was a big challenge to be there.

**Tigerman:** What year was this?

**Arets:** It was 1987. From '87 on.

**Tigerman:** Do you know that Alvin was here in Chicago? He was the associate dean at the University of Illinois at Chicago, where I was teaching. From there he left to go to London, where he had this remarkable career at the AA. Which one could argue, simplistically, made the AA. Turned it from a very conservative, almost reactionary institution, to a wonderful place.

**Arets:** Alvin had a lot of influence, I think, on many people. I think when Alvin went to the AA he had no clue what he should do there. The

AA was not a rich school. It was a school which he started to develop. I think when we look now at it, we say, okay, Alvin transformed AA, he did a great thing. But in the beginning it was not easy for him.

**Tigerman:** No. Actually, you probably know the history. He was close enough to Margaret Thatcher that he actually had money funneled away from Cambridge to the AA. So he found a way, a clever way, to keep the thing afloat. And then he started to publish various journals, and brought in brilliant people, it turned out: Rem [Koolhaas], Zaha [Hadid].

**Arets:** They were students there. Rem was in Holland when his father was living in London, and he went to London, and Zaha went to London. So all of these people were students, and after they studied there they became teachers. So most of the people who were teachers there were previous students. And that was for him, for Alvin, also a way to keep the school alive. He could save costs, and there was diversity in the school. People had different ideas.

**Tigerman:** So I was reading that when you became the dean at the Berlage Institute, you brought together students and faculty doing rotations around research. Because I want to ask, if you have a vision or what your plan is here?

**Arets:** Maybe we should talk about my history first. When I was a student, self-education was very important to me. I wanted to discover what I was able to do and what I wasn't able to do. I was with a small bunch of people at the University of Eindhoven. I did a book on [Dutch architect Frits] Peutz, which no one was interested in at the time. Then I went to Russia, went to Italy—Como and Milan.

Then, suddenly, Alvin asked me to go to the AA. And for me it was a kind of twist. At that time I wanted to go to Milan and stay in Italy for awhile. And suddenly I went to London. And then [Bernard] Tschumi became dean of Columbia. I also happened to know Tony Vidler, and they more or less asked me to go to New York. So either Princeton or Columbia. And then I went to Columbia for a couple of years.

**Tigerman:** When Tschumi was dean.

**Arets:** Yeah, when Bernard Tschumi was dean. And Tony Vidler was at that time at Princeton. John Hejduk was at Cooper [Union]. I was teaching also one year at Cooper. And then my first buildings started to happen. So I did my work in Holland, flying back and forth.



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And then I was asked to do the Berlage Institute. The idea to start a school like this emerged when Herman Hertzberger in Delft was doing his kind of classes. The Berlage was a school that was doing master classes and that was more or less it. And when I came, the school had hardly any money. And I thought, what I have to do, I want to make it into a laboratory. I want to do research, whatever that may be. I saw that it was good to have a long master class, to have long research sessions where students in groups—in two groups of 18—should do research on a team. And we asked at least two or three professors a year to come and do research with them.

After the first year of research, there was this second year where a student could do with one professor a kind of thesis, maybe something which you could call the first year of a Ph.D. And then I asked the government, could we start a Ph.D. program? Ph.D. programs are normally at universities, but they allowed me to do the Ph.D. So the students could do a first year, and then the second year a kind of independent research that they set up for a whole year with someone. And then they could do a Ph.D.

I think as a young architect, it's important that you are able to make a statement, to write a book, to really concentrate on your own work. If you do this in a school where you have people like Stanley Tigerman, or Daniel Libeskind, or Rem, or Zaha, or whoever, then there's debate in the school.

I didn't tell the students exactly what they should do, although each year I defined a topic. One topic was, for example, Double Dutch: What would happen when Holland doubles in population? So every year I put one topic in front of them.

Another thing, which was interesting, was that I was going back and forth between Europe and America. I could learn from the debate happening in New York and the West Coast, in Europe, and also Japan. When I was a young student I was not only interested in Japan, but I visited Japan.

**Tigerman:** You're doing a house there now?

**Arets:** Yes, it's ready now, yes. So that was also interesting when I was at the Berlage, because I could bring people from Japan and the States to Holland, to meet Dutch architects. And the students came from all over the place. So it was a small school with multicultural debate. And the diversity of people I brought in—that's something I learned from Alvin—made, I think, the school rich.

**Tigerman:** Here it's a different problem, because here it's a huge school.

**Arets:** Very huge.

**Tigerman:** And some would argue that it's too big. You know we've gone through, that we're just coming out of this long recession, both as a country and globally. And Crown Hall, the architecture school at IIT, has been the major—I'll put quotes around it—profit center of the institution of IIT. But in the process it became huge. So how would you approach the same thing in a place like this?

**Arets:** I think we have to understand that this place is not one school, it's not one thing. We have the B.Arch. structure, the normal five-year program. Then you have the master of architecture, then you have the master of landscape. Maybe you could argue for also having a master of urban design.

The B.Arch. and the M.Arch. programs here, and the MLA and MUD, you could say, are already different things. Then what is not yet fully developed here is the master of science. So I think the master of science could be maybe a small Berlage. It could be a place where the school could bring people in, and we could maybe have 40 or 60 students, who after their fifth year, their B.Arch., study one year—two, three semesters—in a master of science program.

Then you have the Ph.D., which is, I think, also a big challenge. I think the Ph.D. could be—it's traditionally, of course, been connected here to engineering, to structural engineering.

**Tigerman:** But it could be something else.

**Arets:** It could be, besides being this, it could be something else.

**Tigerman:** Right, and should be, I would submit.

**Arets:** I think just as when Alvin went to the AA and when I went to the Berlage, this for me is a new chapter in my life. So what I'm doing now is I'm trying to talk to everyone. I'm talking to all the faculty. I'm trying to understand the structure of the school. This semester the school is running the way it runs.

I think, though, we have to start changing the curriculum. We have to start changing the way the school is organized. I think we have to start looking to compose and develop a new school. Maybe in one or two years we'll know exactly where it's heading.

But it'll be a school which is dealing with issues of the metropolitan area, that will deal with issues related to Chicago and to the bigger metropolis. I think we can learn from things happening in China. In China, what happened



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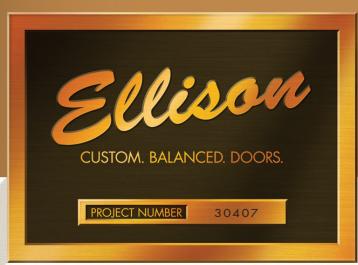
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over the last 15 years is extremely interesting. Maybe it was growing too quickly. Maybe they made decisions too fast, maybe not. I think we should challenge that. Spring semester I would like to have debates here with a lot of people. We will have master classes and seminars. It should not be one person who says what to do.

But we should understand there's a kind

of community in Chicago. There's an American architectural community, which is extremely rich. But also people from Europe and China. This place could be a melting pot of a new architectural, let's say, climate.

**Tigerman:** Are you going to do any hands-on teaching yourself?

**Arets:** Yes.

**Tigerman:** Mies was influential, of course, because of his buildings. And Gene Summers was influential because of his buildings. You will also be influential because of what you've done, whether you like it or not. Once a year, Peter Eisenman invites me to his juries in New Haven in the winter, and Frank Gehry in the spring. And when you go in the winter the kids are little Eisenman maniacs. And in the spring they're little Frank Gehrys.

So your work has—albeit that it's very reductive and to the point—it has an impact, no question. Students will look at it. And one can expect to see a very minimalist approach to things, which is actually the tradition of the place, of Mies.

So without my rambling on further, it's nice to hear you'll be teaching, because it would also have an impact on what's happening. Particularly in the context of research. When you talked about the Netherlands doubling in size and what it might mean, that's also true here. And there's been a huge resistance to living in an urban environment, because it's been misused here in terms of public housing. Things have not gone well in that sense. There's the keeping of a stratification, a layering—economically and sociologically and behaviorally—and that has to change.

I was just reading something about an experiment of a project in Chicago where rich people are living actually literally next door in an apartment building to very poor people. And it works and it doesn't work. Do the poor people and the rich people communicate? Not really. Not yet, because it takes time to see what happens. So I'm interested in your having a series of nodes of what's going on. Obviously, schools that have a bachelor program are influenced by the three-year students. If the doctoral program was more than simply engineering oriented, that would also have a very big impact.

**Arets:** That's for sure what we're going to do.

**Tigerman:** You should. Look at Princeton. I was on the visiting committee there when [former dean] Ralph Lerner was alive. It was an incredible program because there were 12 doctoral candidates in residence at any given time. They had a huge impact on the M.Archs. There never was a B.Arch. program, but certainly other people studying architecture were influenced immensely, immeasurably, by the doctoral candidates. So your doing that will also have an impact here.

**Arets:** Yeah, but we have the B.Arch., then we have the master program. But what I would

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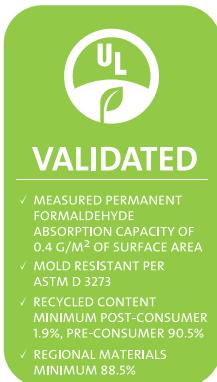
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like to also say again, the master of science is actually something you do after you finish your M.Arch. or Bachelor's. And those students will have an incredible impact on the M.Arch. and B.Arch. students.

And the Ph.D. students, they can teach. They're allowed to teach. So to bring them as teaching people into the curriculum I think

is great. So I believe that what is happening now in this school, and in many schools, you see a vertical sort of system: B.Arch. is here and the M.Arch. is there. That's okay, but I would like to cross fertilize. I want to do studios together, maybe. They can do a master class together. They can do seminars together.

**Tigerman:** They can do research.

**Arets:** They can do research together. One can do reading classes for the other. I think, let's say, a master of science student or Ph.D. student can do reading classes. Maybe he can work with a bunch of, say 15, young students on a theoretical problem. So that's also the challenge of a big school. This big school means I have at least four schools in one house.

**Tigerman:** Do you know the tradition of what happened there when Mies came? If you don't know, it's a story you should know. When he took over the school there was a retrograde, very conservative wing that hated him, of course. So what he did when he came, he first came in '37. When he began in '38, he and [Ludwig] Hilberseimer and [Walter] Peterhans taught the first year [students], and they gave up [on] the rest. They let it go. They cast it adrift, like put it in a lifeboat and set it off. They never bothered.

The next year, he still stayed with the first year and Hilberseimer and Peterhans and [Alfred] Caldwell took the second year [students]. And so forth, and in five years it was a changed school entirely.

I have to make the analogy, given that we're in an American election cycle, with Barack Obama, who made the mistake in his first term of trying to be a conciliator with Congress. Which didn't work, because Republicans have blinders. They only see one thing, their eyes on the target. They never change.

Mies understood that when he came here, and he didn't try to change the old guard. He just took the first year [students] and made that the school. See what I'm saying? That was a different time.

**Arets:** And a very small school.

**Tigerman:** Yeah, it was a very small school for sure. It was a wholly different time, and we are talking about 70 years ago.

**Arets:** But this is a strategy I could use, and I did use at the Berlage. I was involved, of course, in teaching at the Berlage. But it was a very small school. That was a strategy which worked when Mies was doing it. I completely agree.

**Tigerman:** But your point here is that this could be a series of small schools in the larger, overarching umbrella institution.

**Arets:** Yes, and I think you, Stanley, know very well that students, I don't want to say they mimic, as you said with Peter Eisenman, but

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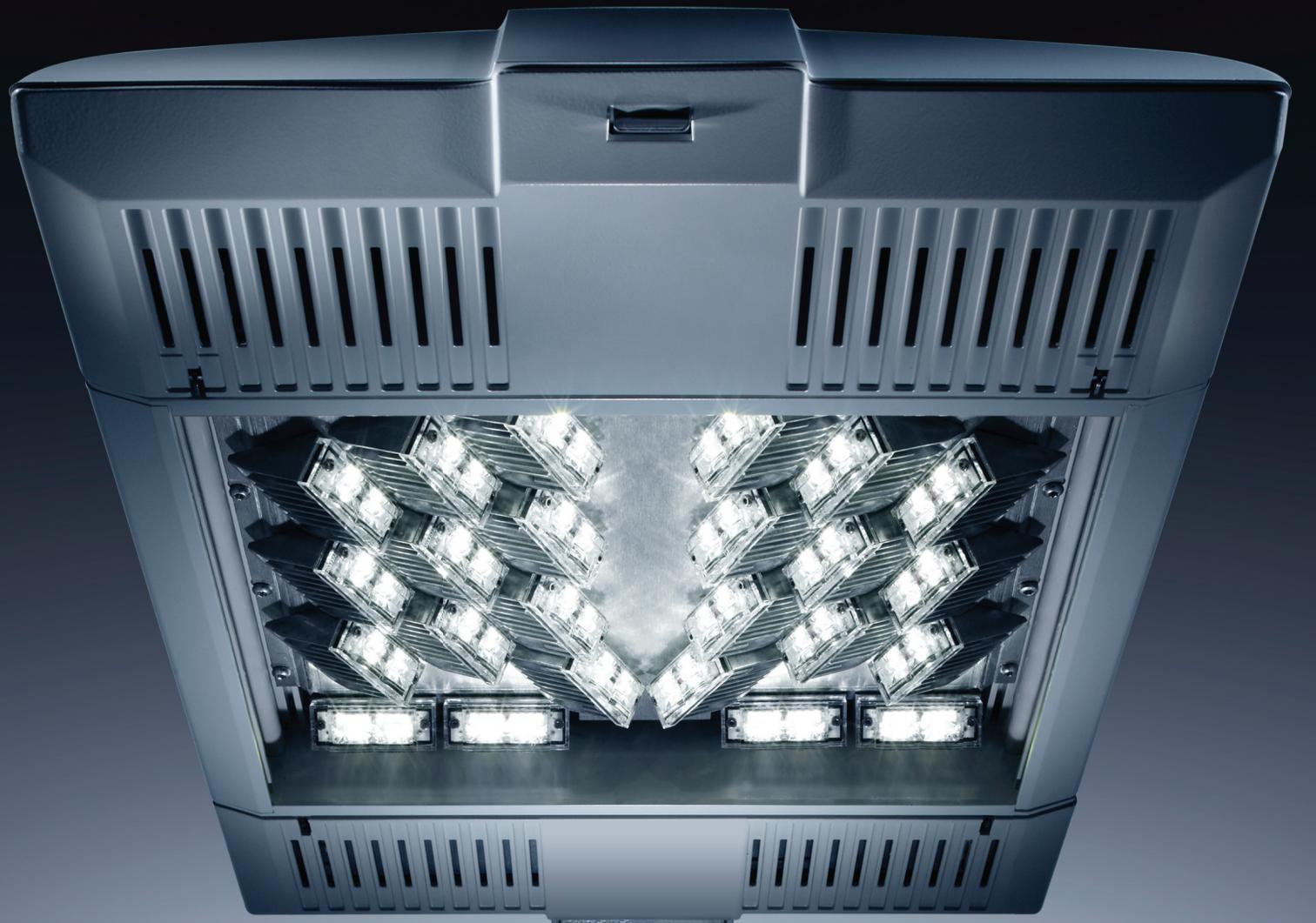
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they look at other students. And rather than them looking at me or star architects like Peter Eisenman or Zaha, I would like them to mimic and to look at students who are in this place.

At least that's something I learned from the AA. In Zaha's studio, yes people were drawing like Zaha. I tried to avoid that in the beginning, which was very difficult. Because at the end of the year you saw all the portfolios, and people said, "Okay, yeah, it looks like your work." That was the kind of mimicking of the AA.

When you teach students to draw you talk about a signature. But the moment they do research they have to develop their own language. I think for me at least it's a kind of trick: out of research they're going to develop their own language. They're going to develop their own topics. And in the long run, I think that's an interesting challenge for this place.

**Tigerman:** I have a question about what you say about a series of smaller establishments within the larger envelope of the school. I am a Chicago booster. I love Chicago. I was born here. And I wonder, I'm hoping that there will be ways you can have an impact on Chicago, not just its architecture community, and not just here in Crown Hall or at IIT, but on the larger architecture community, and on the city. And your notion about research and how it could intersect with different disciplines, I would hope that would expand beyond this place—beginning with Chicago itself.

**Arets:** I agree completely. Over the last six years, I had a professorship in Berlin. I did six years in Berlin. I couldn't help but think, why should I work in whatever other place when I'm in Berlin, and I have a city which has a tradition? Here in Chicago, I think I would really like to become a part of the city. I would like to learn more about it.

I would really like to, as you said, start to think about hybrid urban conditions. I believe strongly that people with different backgrounds can live in one building. The challenge for big cities is to make big buildings, and in these big buildings you can have a hybrid population. I think when the buildings are big, public space is extremely important. But you can live next to each other whether you have one background or the other. Whether you're rich or not as rich. I think in a big city that should be possible.

That's possible in cities like Amsterdam. But it depends on the urban structure of the city. I'm quite sure that we could do something like that. One thing we should not do is make an architectural school an island for only academic debate. I would really like to bring other debate into the school, and I would like

811

Total student enrollment at  
IIT College of Architecture  
in fall 2012

to bring the school within the community of Chicago.

**Tigerman:** I'll give you an example, in terms of architecture schools. There's IIT, the University of Illinois at Chicago, and the Art Institute. But there is also a place called the University of Chicago, with which I'm somewhat familiar. My wife and I are on the visiting committee of the Divinity School. And it's arguably the best Divinity School in the country. Arguably it's the best university in between the mountain ranges, in terms of intellect.

It would be interesting in this spirit of breaking down barriers to find ways to introduce you to other cultures, intellectual and otherwise in Chicago, to find a way that the architecture school at IIT could be more integrative.

I can help with that. So let me start by saying my wife and I are going to invite you to dinner. I would like to bring some other people together to introduce them to you. So that interaction that you want to have here at the school, in this building, can actually reach beyond architecture, beyond IIT.

**Arets:** Yes, thank you very much. The school, the IIT campus, is a brilliant place. Since 1970, no academic building has been built here. Buildings like 3410 [South State Street], they could be cleaned a little bit. And there's a big challenge now to build a new building: the Innovation Center [which will house workshops and media labs]. I think there's a big challenge here at IIT, and the surrounding area, to develop this into an area where, besides IIT, a lot of people could work and live.

I think by densifying this area, this could also be over the next five or 10 years developed as an interesting new condition of Chicago. So we should concentrate on this area, the campus.

But of course I think IIT needs to have a debate with the city. And I think one of the important things we did at the Berlage, and what I learned from Alvin Boyarsky also, is that you have to bring the city into your house.

It's the same thing you're doing when you invite people. You're not only inviting architects, but you're also inviting artists, writers, or you invite maybe the baker or the butcher because you think you can have an interesting debate with those people.

That's what you do in your house, and I think that's also the way we should see an institution like this. It should also be in a way an open house. We have to understand what this place is, what the potential of this place is. Don't forget, at IIT we have also a very interesting design school.



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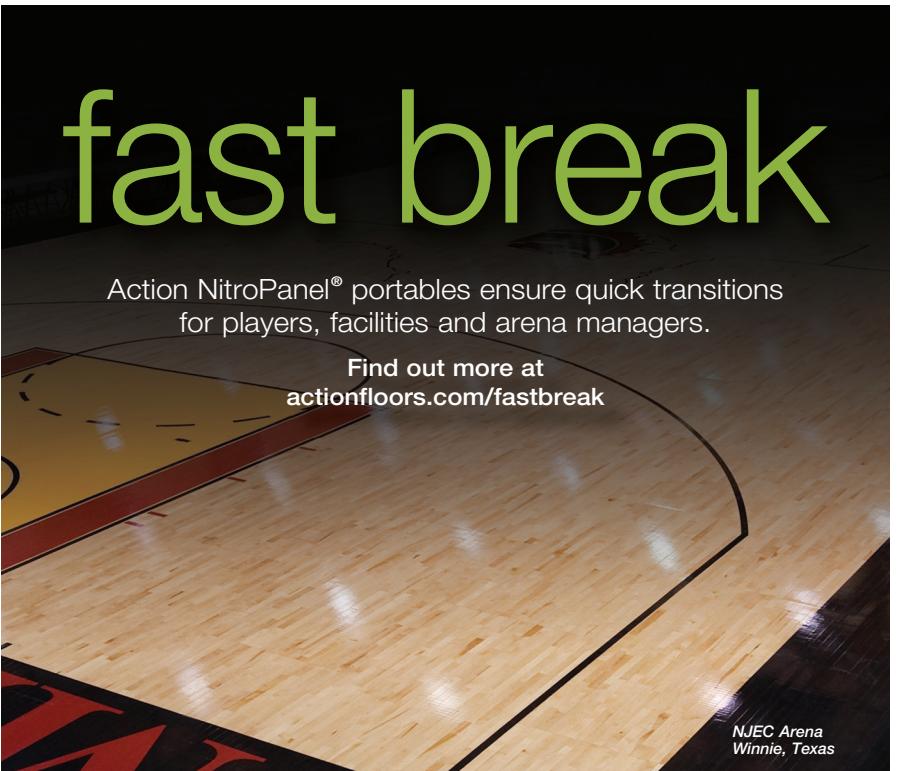


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**Tigerman:** Yeah, but it's downtown now.

**Arets:** It's downtown, but it's still part of Chicago. It's part of IIT, and I think Patrick [Whitney] is doing a great job there. Of course, you can say it would have been for us better if it was our neighbor.

**Tigerman:** It was.

**Arets:** It was downstairs. But okay, schools became bigger. That's the situation. Schools are different. I think we should not just mimic each other. I think having diversity and different points of view at different schools is as challenging as within each school having different professors and different studios who have a debate. Because without debate nothing goes.

**Tigerman:** Well, one thing I will say that Donna Robertson did do, is she brought in a certain number of theoretically inclined people that didn't exist here before her time. And she got in a lot of trouble with the old-time faculty, the old guys about that. But she did that, and it was a refreshing change. This semester you had Brad Lynch teaching, and David Woodhouse, and Pat Natke. In other words, the better, younger, next generation of architects.

Of course, you've always had Jeanne Gang and John Ronan. And now Ross Wimer is doing a studio regularly. So you have some of the better people in town teaching here. The question is: What are they teaching, and is there interaction between what goes on here? And that's what you're talking about, and that sounds to me very healthy.

**Arets:** It is a big challenge.

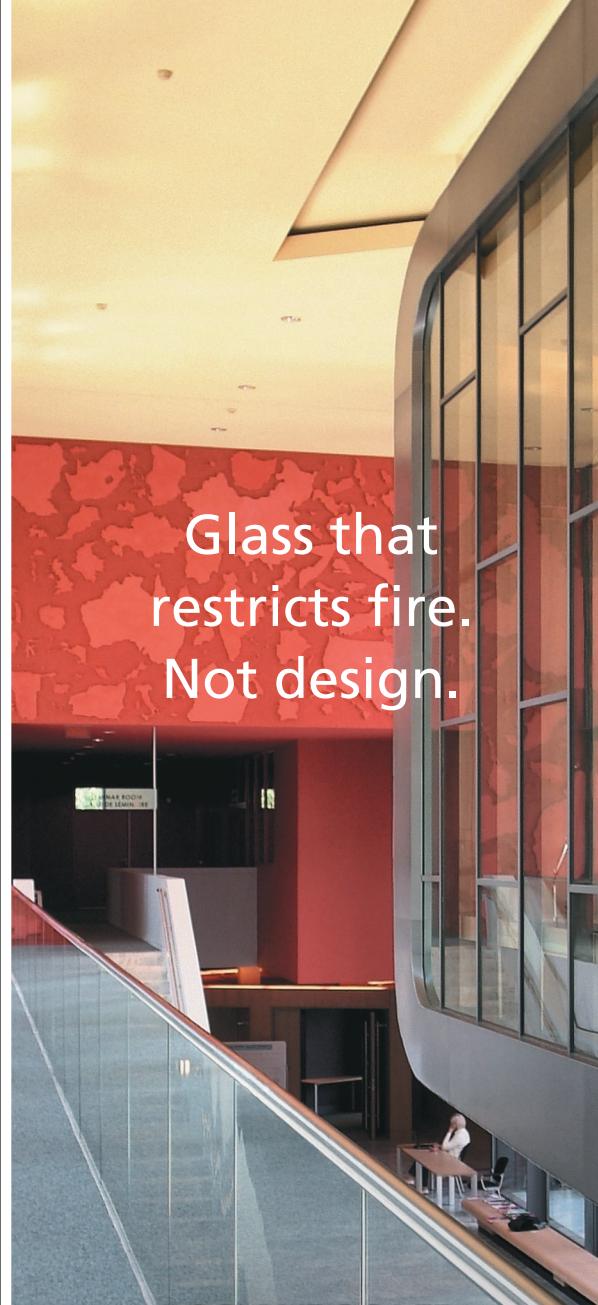
**Tigerman:** It's a huge challenge.

**Arets:** It's a huge challenge, we know. I think we have to understand that a school like this should not be a school where units will do whatever they want. But a school should have a kind of direction, a kind of vision. Otherwise people are each doing their own studio, and maybe some are doing a studio five years in a row.

So I think that when we talk about debate, when we talk about having to communicate with Chicago, we also need to have a debate and communication within the school. And that's one of the first things we have to establish here. I don't say it's not here ...

**Tigerman:** No, actually some of the old guys, without naming names, the Mies acolytes, are still here teaching. And they tend to be somewhat—I'll say reluctant—to engage across generations, across disciplines, across preconceptions. You have to find a way to break it. That's part of what exists here, and you have to deal with it. It's a part of what has happened here. It's a great challenge and I wish you great luck with it.

In any case, I think having you here, having a person of quality, is really important. So many schools, deans, and directors of our architecture schools go from school to school to school. And they become administrators, and the schools are weak. All the second-rate schools do that. And it's good to finally have an acknowledged, good architect with a theoretical background who does good work actually running a school. And it's great for the city. So I just want to say thanks and welcome.



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Text by Heidi Moore



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4. Identify potential uses for treated graywater.

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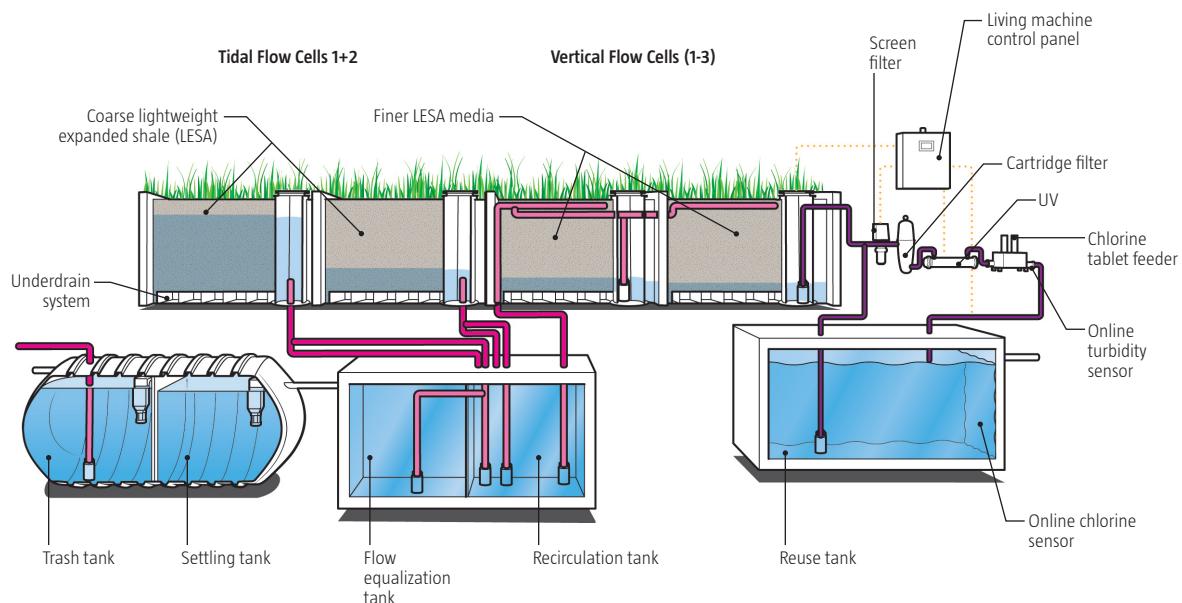
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containing grease and food particles—and light graywater, which comes from bathroom sinks, tubs, and showers.

Blackwater, the more contaminated counterpart to graywater, includes untreated water that contains—or has the risk of coming into contact with—human waste from toilets and urinals; some municipalities also categorize laundry water used for washing diapers as blackwater.

Because on-site wastewater treatment and reuse—particularly of blackwater—are still nascent concepts for building and health officials in the U.S., they typically extend a building's permitting review process—and ultimately still may not be approved. But in geographies where water shortage is common, residential graywater reuse has existed for some time now, says Katie Spataro, research director of the Seattle-based Cascadia Green Building Council and the International Living Future Institute. "Many more states have now adopted regulations, particularly where they see the value [in reducing water consumption]." Regulations vary from state to state and county to county, with graywater systems more prevalent in western and southern states.

For architects unfamiliar with the design and permitting process for on-site wastewater treatment systems, installing a graywater system in tandem with other methods of water reduction—such as low-flow appliances and rainwater collection—is a big step toward reducing a building's overall consumption of potable water.

### Going Gray

Regardless of their size and capacity, graywater treatment systems generally comprise the same basic components: pipes for collection at the source and for transport to a filtering mechanism; a septic or storage tank where collected liquid is held for treatment or undergoes treatment; and a filtration system to remove waste and debris. Most systems also require a pump to move the filtered wastewater to its point of reuse, although many take advantage of gravity. For example, a building may send graywater to a lower grade outside for subsurface irrigation.

Graywater systems range from simple off-the-shelf products for the home, which recycle sink wastewater for use in toilet flushing, to complex, custom-engineered systems for large commercial projects. All rely on some method of filtration or treatment. Below, you will find a summary of the pros and cons of several common methods, as described by the Pacific Institute, a nonprofit environmental research group in Oakland, Calif.:

- Activated carbon filters installed in plumbing outlets can simply and effectively remove many organic chemicals and inorganic compounds, such as chlorine, from wastewater. But these filters are costly and don't remove all of the impurities. These shortcomings also apply to sand filters and bark and mulch beds, all of which are also susceptible to clogging and flooding.

WITH DROUGHT CONDITIONS AFFECTING MORE THAN 60 PERCENT OF THE LOWER 48 STATES IN 2012, WATER MANAGEMENT AND CONSERVATION IN BUILDINGS HAVE BECOME EVEN MORE CRITICAL.

# 13

The percent of water consumed in the U.S. that is used by building occupants, roughly 3.4 billion gallons of water per day



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**Environment**



The mixed-use development at Barrett, the Honors College at Arizona State University, uses treated graywater from the showers and sinks of a 1,700-bed residence to irrigate the landscaping.

- Aerobic biological treatment involves pumping oxygen into wastewater while it is in storage tanks in order to feed beneficial bacteria, which in turn digest the organic contaminants. Although its design is more complicated, this system allows on-site storage of treated graywater.

- Membrane bioreactors combine biological treatment—using contaminant-consuming microorganisms—with filtration to remove contaminants and pathogens. In general, these are highly effective.

- Chemicals such as ozone and chlorine also can be used to disinfect bacteria, organic matter, detergent residue, and other contaminants for long-term graywater storage. Because of the toxic byproducts of these chemicals—albeit minimal in quantity—this option is less environmentally friendly, so ultraviolet (UV) light has gained popularity for use as a disinfectant. UV light works by disrupting the pathogen's DNA, which renders it harmless.

Most graywater treatment systems that are implemented in a building design use a combination of two or more of the methods mentioned above.

Transporting graywater to its ultimate destination for reuse—such as a landscape or toilet tank—as quickly as possible is imperative, says Pete Muñoz, a senior engineer in the Santa Fe, N.M., office of Biohabitats, a conservation and ecological restoration design/build firm. “The trick with graywater is to get it out into the environment as fast as you can—within 12 to 24 hours—and not let it sit and break down” inside the storage tank or plumbing system. The problem, he says, is that many state plumbing codes specify that septic tanks—which may be required for on-site graywater treatment systems—must be sized for two-day retention. If graywater is stored in such a similarly sized vessel for such a prolonged time period, it will clog the drain field when it is released.

For the laundry-to-landscape treatment system installed in the mixed-use development

at Barrett, the Honors College at Arizona State University, Muñoz and Biohabitats’ subsidiary Natural Systems International designed a reclamation system with a capacity of 10,000 gallons per day, which processes water from the showers and sinks in the 1,700-bed residence and channels it to the surrounding landscape. The water is first screened to remove hair and debris particles, and then continually recirculated through a simple sand filtration system for use outdoors as subsurface irrigation. Because the water is constantly recirculating—at a rate of about three to four times per day—it doesn’t develop filamentous bacteria; clean water is always available for immediate use.

Subsurface irrigation using graywater is preferable to spray irrigation, which “relies on a higher level of control and sophistication,” and would entail disinfecting the water for potential human contact, Muñoz says. The nitrogen in the wastewater is beneficial to the vegetation.

The Barrett development’s dense cluster of buildings was well suited for a laundry-to-landscape system because the graywater doesn’t have to travel far from the source to the reuse points. Traversing farther distances can be accomplished, but would require additional energy and infrastructure for pumps and plumbing.

Arizona’s climate also lends itself to year-round graywater systems. In colder climates, where landscaping requires less frequent irrigation and evapotranspiration occurs more slowly, or during periods of heavy rain, the saturated ground may be unable to absorb graywater, Muñoz says. “You want the ability to seasonally turn a valve and send it to the sewer. ... A lot of systems have that option—whether automatic or passive—through an overflow storage tank [to release effluent] into the municipal grid system.”

#### Reuse and Reduce

Two projects of differing scales illustrate the potential of graywater recycling: Seattle’s Bertschi School Living Science Building by KMD Architects and New York City’s One Bryant Park by Cook + Fox Architects.

The 1,425-square-foot Bertschi School Living Science Building, a science wing for the school’s 235 students from pre-kindergarten through fifth grade, has a relatively simple graywater-reuse system designed by the Bellingham, Wash.-based engineering consulting company 2020 Engineering. Graywater collected from classroom sinks travels to an undercounter filtration tank. From there, the water is channeled to an indoor living wall of tropical plants, where it undergoes evapotranspiration (a return to the atmosphere

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through evaporation and transpiration from plant tissues). This closed-loop process eliminates the need for a storage tank. Students can experience water recycling, reuse, and conservation firsthand.

The building's stormwater is also handled on site. A 2-inch-thick mat roof—comprising a thin moss mat, water-retaining fleece, and

root barrier—absorbs and evaporates most of the rainfall during the summer, and between 20 and 50 percent of the rainfall during the winter. The balance drains into cisterns for use in irrigating an outdoor garden. The school also has the capability to treat rainwater to potable standards on site using carbon filtration and UV light, but the system is currently not used

because the local health department did not approve the system.

The 2.1 million-square-foot, LEED Platinum-certified Bank of America Tower at One Bryant Park is, in many ways, a large-scale version of the Bertschi School. The building's green roof collects excess rainwater used to irrigate plants indoors and to flush toilets. Gravity-fed collection tanks transport bathroom sink wastewater down to the tower's basement for treatment and for reuse in the building's cooling towers. Through a combination of low-flow plumbing fixtures and waterless urinals, in addition to the graywater recycling system, the project conserves about 7.7 million gallons of water per year.

#### Reality Check

Beyond regulatory approval, a shortage of time and poor planning are also obstacles to the widespread use of on-site water recycling systems, Muñoz says. "The problem comes when the client says, 'This is what I want to do, but we don't have any money to have a long permit battle and we need to have permits done in three months.'" Architects must anticipate an extended review period for wastewater recycling systems in their project schedules, he says, particularly in states and counties with cumbersome statutes.

The cost of on-site wastewater management can vary widely depending on the size and scale of the project, says Eric Lohan, general manager of Living Machine Systems, a Charlottesville, Va.-based company specializing in wastewater treatment and reuse systems through wetland ecology and, specifically, tidal pools. Adding to the complexity of estimating costs are variations in "the cost of water in a particular city," Lohan says. "Water [utility] rates in general are growing at 9 percent a year. The ROI depends on how concentrated the water is, how much you're treating, and where you're located."

In residential buildings, between 50 to 80 percent of the wastewater produced is graywater; for commercial buildings, the range is lower, at 20 to 40 percent. "If you had an apartment complex for about 1,000 people, you're looking at payback between three and four years," Lohan estimates.

Living Machine Systems' graywater and blackwater treatment system at the new headquarters for the San Francisco Public Utilities Commission, designed by Seattle's KMD Architects, clocked in at about \$1 million, or 0.5 percent of the total building cost. The 5,000-gallon-per-day capacity system pumps wastewater through a series of five hydroponic cells, which are embedded in the building lobby and the surrounding sidewalk outside.

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The system includes two tidal-flow, first-stage treatment cells and three vertical-flow, second-stage treatment cells. The two types of treatment cells operate similarly. Above grade, the treatment cells resemble large planters, and each contains shade-friendly, leafy plants indoors or low-maintenance, native plants outdoors. The planters drain to a series of below-

grade tanks that perform specific functions: a settling tank for organic material; a collection tank for discharging solid waste to the sewer; and tanks to equalize flow, recirculate water, and store water for toilet flushing.

Wastewater is pumped into the treatment cells and then drained into a reuse tank a dozen times each day, mimicking tidal action. As the

water rises and falls, the plants, bolstered by naturally occurring, beneficial bacteria, consume the nutrients in the water. The planting medium—coarse, lightweight, expanded shale—ensures that wastewater levels stay 6 inches below the top surface of each cell, out of reach of building users and passersby.

From each hydroponic cell, the wastewater is piped to a two-stage filtration system, which is followed up by UV and chlorine disinfection. The Living Machine treatment system is expected to reduce the building's water use by 70 percent and to save about 750,000 gallons of water per year.

#### Washing Away Conventions

Despite the science behind the design of wastewater treatment systems, some designers, building officials, and occupants still view them with skepticism. The widespread installation and use of such systems relies on more than simply perfecting the technical details; it also demands an awareness of water scarcity and reuse. "As we become more aware of changes relating to water availability and water supply on the treatment side of things, graywater systems will be more accepted and perhaps encouraged," Spataro says. "The shift will really come when the building industry feels that water is a precious resource, and that our lightly tainted graywater shouldn't be going off miles away to a water treatment plant. Water has value in reuse within the boundaries of the site."

Going one step beyond wastewater treatment systems that clean water to a state suitable for nonpotable uses are graywater and blackwater recycling systems that can treat and clean wastewater to potable standards. But designers should not expect these systems to become standard callouts in architectural drawings anytime soon. They still cause regulators, building owners, and occupants to squirm.

Everyone will first need to reevaluate their preconceptions about wastewater itself, says Dan Hellmuth, AIA, principal and co-founder of Maplewood, Mo.-based Hellmuth+Bicknese Architects. "We need to eliminate the concept of waste, and no longer talk about it that way." Instead, he says, people need to transition their perception of graywater as a potential source of pathogens to a source of valuable nutrients that can benefit the earth. "It's basically nutrient conversion."

As a result, while regulations currently restrict or even outlaw the use of on-site wastewater treatment systems, the solution to water scarcity ultimately does not lie in codebooks or technical drawings. The solution begins with us.

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# QUIZ

**1. Graywater sources include:**

- a. Sinks and showers.
- b. Dishwashers and washing machines.
- c. Drinking fountains and cooling towers.
- d. Toilets and urinals.
- e. All of the above.

**2. True or False: Blackwater has the potential to contain human waste from toilets and urinals.**

**3. True or False: On-site wastewater treatment systems require a pump to deliver treated water to the point of reuse.**

**4. Identify four on-site wastewater treatment techniques that the article discussed.**

- a. Chemical
- b. UV light
- c. Heat and pressure
- d. Aerobic biological treatment
- e. Microbial DNA disruption
- f. Activated carbon filters

**5. One key recommendation for a successful graywater treatment system is to:**

- a. Design the system to treat water to potable standards.
- b. Transport water to the point of reuse as quickly as possible.
- c. Avoid the use of chemicals.
- d. Store treated graywater in a septic tank that is sized for a one-week retention.

**6. Why is subsurface irrigation preferable to spray irrigation for recycled water?**

- a. Spray irrigation requires additional piping and pumps.
- b. Subsurface irrigation does not require pumping to the irrigation site.
- c. Spray irrigation requires additional water treatment.
- d. Subsurface irrigation requires a higher level of control and sophistication.

**7. True or False: Graywater treatment systems should have the capability to divert excess water to the municipal grid system.**

**8. True or False: The cost of on-site wastewater management can vary widely depending on the size and scale of the project.**

**9. In residential projects, approximately \_\_\_\_\_ percent of total wastewater generated is graywater. In commercial projects, the range is \_\_\_\_\_ percent.**

- a. 20 to 40, 10 to 20
- b. 20 to 40, 40 to 50
- c. 40 to 50, 20 to 40
- d. 50 to 80, 20 to 40
- e. 60 to 70, 40 to 50

**10. According to one industry expert, widespread acceptance of on-site wastewater treatment will come when:**

- a. The cost for municipal water becomes prohibitive.
- b. Building owners realize the potential utility savings.
- c. All treatment systems can achieve potable standards.
- d. The building industry recognizes that water is a precious resource.



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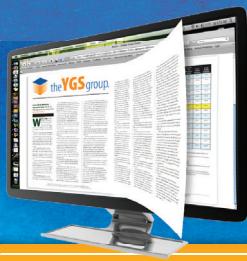
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## POLITICS

# THE NEXT TERM

ARCHITECTS HAVE HAD A PARTICULARLY ROUGH GO THESE LAST FEW YEARS, BEING ACUTELY AFFECTED BY A RECESSION AND SLOW RECOVERY. WILL THE NEXT FOUR YEARS GET ANY BETTER? TWO POLITICAL REPORTERS SAY THAT IT DEPENDS ON WHO YOU VOTE FOR.

## A VOTE FOR OBAMA/BIDEN

Text by **Jamelle Bouie**

**SO FAR THIS YEAR**, a lot of pundits have wasted a lot of digital ink on the idea that this is an unusually high-stakes election. Commentators say this for every election, and most times, they're wrong. But, at the risk of sounding cliché, even a stopped clock is right twice a day, and in this case the pundits are on point.

But if this is an important choice for the public writ large, then it's a critical one for architects. As a profession, architecture has been in a tough spot for the last four years. Compared to other workers with college and graduate degrees, architects were hit hard by the housing bust and financial crisis—unemployment for experienced architecture college graduates is 9.2 percent, according to the American Community Survey, compared to 4.1 percent for college grads as a whole.

A critical choice, though, doesn't have to be a tough one, and if one looks at recent public policy, it's clear that the profession would be best served by a continuation of the path set by the Obama administration.

Since entering office in 2009, President Barack Obama has pursued a series of tax measures to benefit small businesses. The stimulus, the Hiring Incentives to Restore Employment Act, and the Small Business Jobs Act included tax exemptions for key investments, tax credits for hiring out-of-work Americans, greater deductions for startup costs, capital-gains tax cuts, and a measure that raised the small-business expense limit to \$500,000.

**cont. on page 96 ...**

## A VOTE FOR ROMNEY/RYAN

Text by **Philip Klein**

**ON THE SURFACE**, architects may be tempted to re-elect President Barack Obama because he's vowed that in a second term he'd spend more money "rebuilding roads and bridges; schools and runways." Such infrastructure projects carry the promise of more work to struggling architects. The problem is, Obama tried to use government spending to stimulate the economy in his first term, and it hasn't solved the problems facing the architecture industry.

In February 2009, Obama signed his \$833 billion economic stimulus package, promising "shovel-ready" projects. Yet between 2009 and 2011, when the bulk of the stimulus money was spent, architecture firm billings dropped 41.3 percent, according to data compiled by the AIA.

For those still drawn by the allure of more government spending despite this track record, the reality is that unsustainable debt levels at the federal, state, and local levels will continue to put pressure on budgets. So, ultimately, the success of the industry hinges not on government, but on broader economic growth in the private economy.

One of the biggest policy contrasts between Obama and Gov. Mitt Romney is on taxes. If re-elected, Obama has vowed to raise the top marginal income tax rate on those earning more than \$250,000 per year to 39.6 percent from its current 35.0 percent. His

**cont. on page 98 ...**

Infographics by  
**David Foster**

**Jamelle Bouie** is a staff writer at *The American Prospect* and a Knobler Fellow at The Nation Institute. His work has appeared in *The Nation*, *The Atlantic*, CNN, *The Washington Independent*, and *The Washington Post*. He is based in Washington, D.C., where he covers politics and public policy.

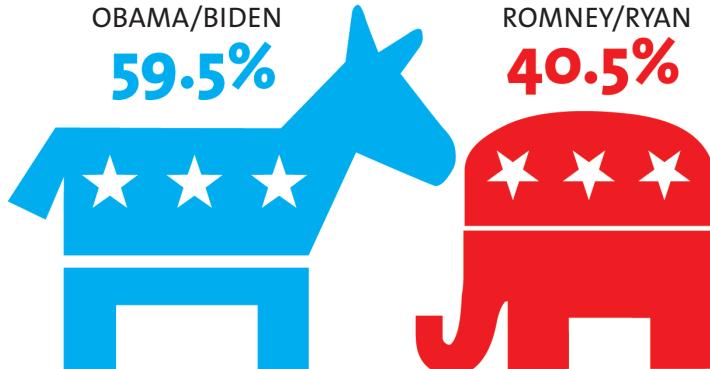
**Philip Klein** is a senior editorial writer for *The Washington Examiner*, with a focus on domestic politics and policy. Prior to joining the *Examiner*, he served as Washington correspondent for *The American Spectator*, and as a financial reporter at Reuters in New York. His work has appeared in *The Wall Street Journal*, *the Los Angeles Times*, *the Chicago Sun-Times*, and *The Dallas Morning News*, among other publications.

BOUIE AND KLEIN  
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### OBAMA/BIDEN

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### ROMNEY/RYAN

**40.5%**

## THE POLL

From Aug. 30 until Sept. 12, we asked you: Who will get your vote as the best candidate for architecture? This unscientific online poll showed that you lean a little more heavily toward the left as a field compared to the nation, which was divided, with 48.2 percent for Obama/Biden and 45.3 percent for Romney/Ryan at press time, according to the Real Clear Politics national averaging of polls.

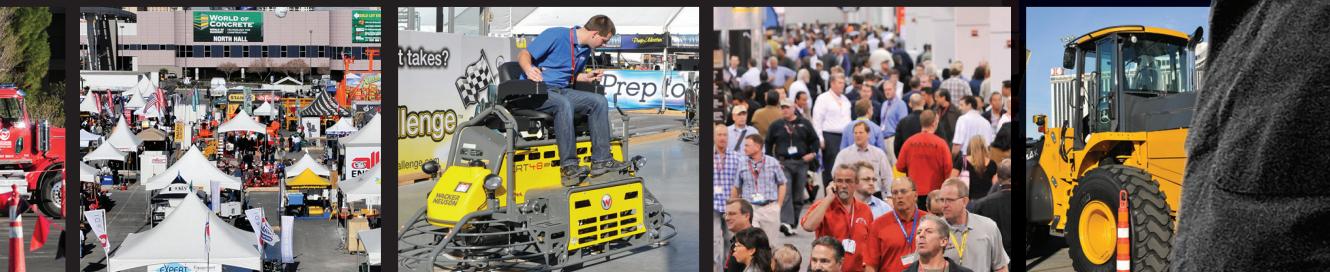
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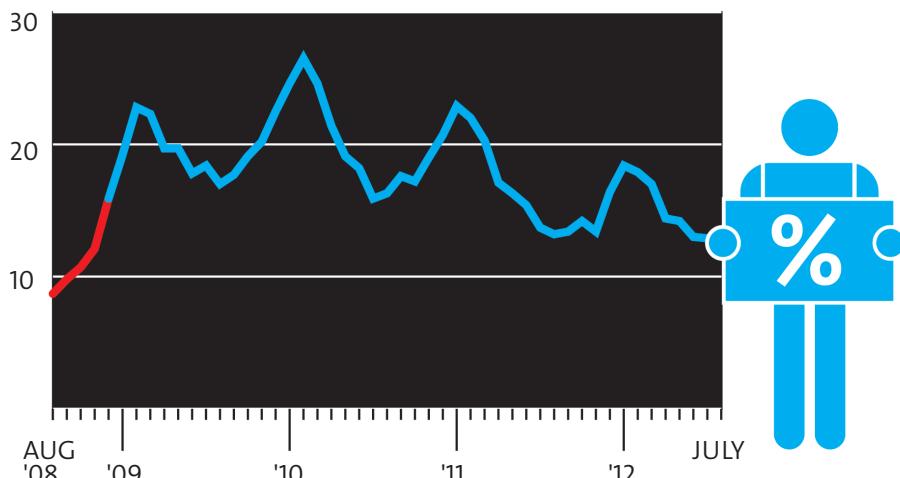
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## CENTER

### ARE YOU BETTER OFF THAN YOU WERE FOUR YEARS AGO? UNEMPLOYMENT RATE PERCENT



cont. from page 94 ...

The graph above details the changing unemployment rate for construction and extraction occupations between Aug. 2008 and July 2012, the latest date for which these non-seasonally adjusted data were available at press time. The change from red to blue in the color of the line graph marks the transition from the Bush administration to the Obama administration in Jan. 2009.

SOURCE: U.S. DEPARTMENT OF LABOR'S BUREAU OF LABOR STATISTICS

The Affordable Care Act is another measure that benefits small architecture firms. Under the law, businesses with more than 50 employees will have to provide insurance to their employees—or face a penalty. Of course, this exempts most architecture firms, the large majority of which employ fewer than 10 people. Those firms—and the people they employ—will have the opportunity to purchase insurance off of the regulated markets established by Obamacare, where insurers will compete with each other for customers on the basis of price. The hope is that this will lower costs and make it easier for small-business owners to provide a key benefit to their employees. Businesses that take this step will receive a tax credit to help cover the cost.

On the other hand, Obama has promised to raise taxes on high earners in his second term, and there's a real worry that this will affect small-business owners and middle-class workers. But the good news is that, according to the nonpartisan Joint Committee on Taxation, just 3.5 percent of small-business tax filers—or 940,000 individuals—would pay a higher rate. Another analysis, from the left-leaning Center on Budget and Policy Priorities, notes that only 2.5 percent of small-business owners who are taxed at individual rates—a somewhat smaller pool of people—fall into the top two income brackets. Given architects' median income of \$72,550—according to the Bureau of Labor Statistics—odds are good that most architects will see little change in their tax burden.

There's also the issue of the architecture students and graduates who have been hit hard by high tuition costs and a sluggish economy—at a time when average in-state tuition and fees for bachelor programs in architecture have increased by 3.4 percent to \$20,115. (For graduate programs, the increase is closer to 2 percent.) The Obama administration has recently moved forward with a program that would ease the burden on those struggling to repay federal student loans. The Income-Based Repayment Plan would allow borrowers to cap their student-loan payments at 15 percent of their discretionary income. And for the long-term, it has proposed a “Race to the Top”-style program for higher education to reward schools that lower tuition costs and boost value.

Other than a few references to cutting taxes for small businesses or helping out students, you won't hear much about these policies from Obama on the trail. But they are all concrete steps that will continue if he's elected to a second term, and might even expand if he can get congressional support. That's what happens when you elect a president who sees a role for government in the maintenance of the economy.

cont. on page 100 ...

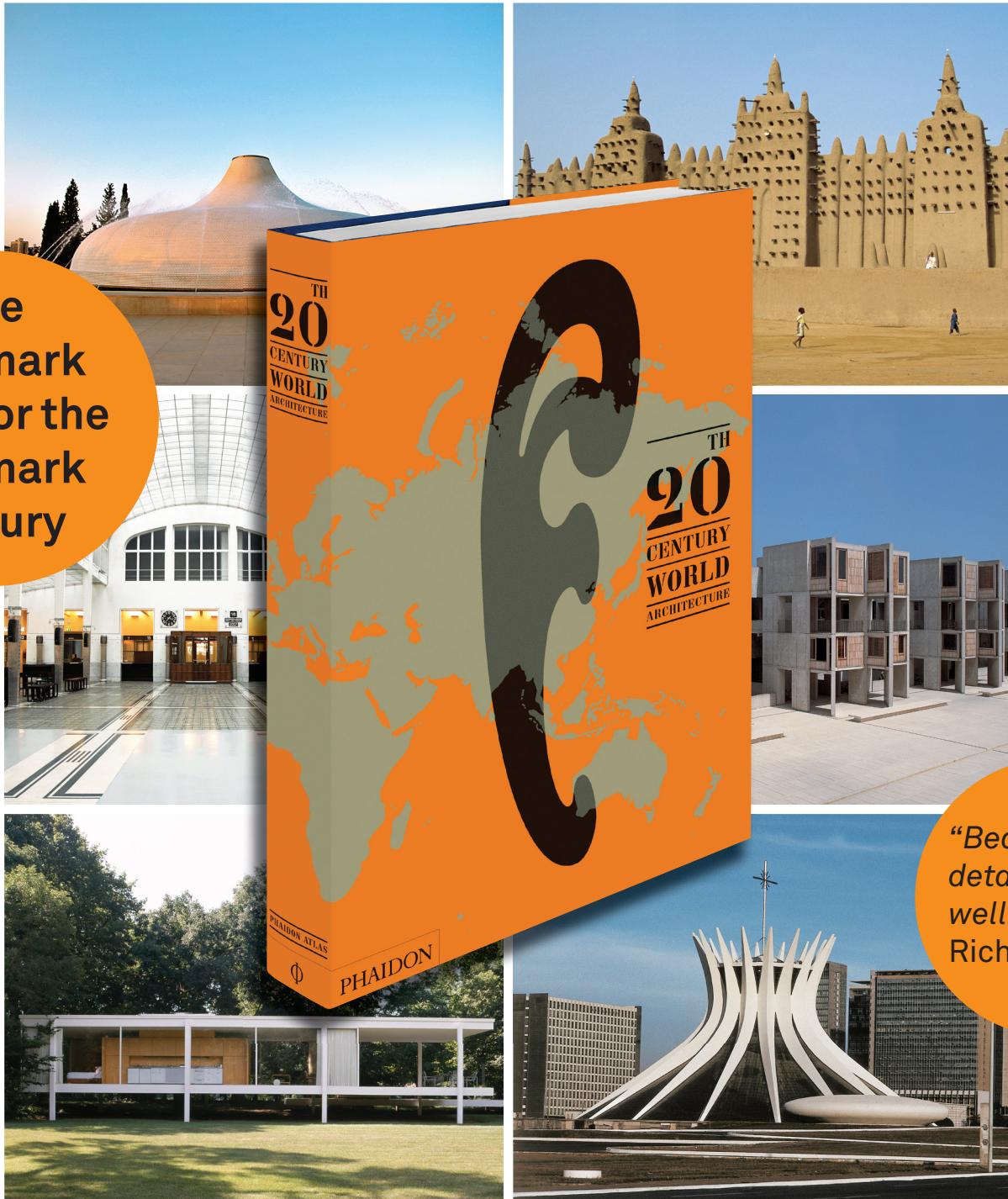
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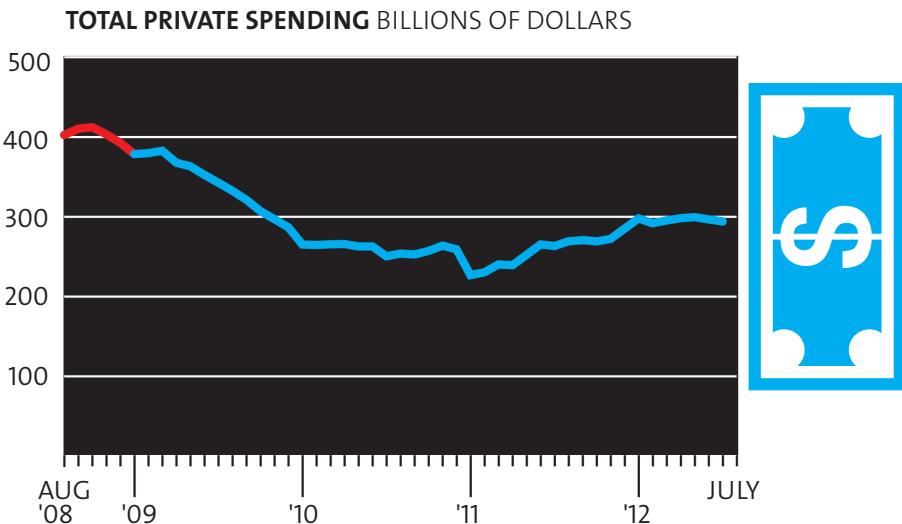
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## CENTER



Total private nonresidential construction spending, seasonally adjusted, between Aug. 2008 and July 2012

SOURCE: U.S. CENSUS BUREAU

healthcare law also includes \$1 trillion in tax increases on top of this, according to the Congressional Budget Office. At the start of 2013, a 3.8 percent surtax on investment income and a 0.9 percent hike in the Medicare payroll tax will hit higher income earners. All told, the changes that Obama has already enacted—or is seeking to enact—will raise the capital-gains tax to as much as 30 percent, or double its current 15 percent. Such tax increases would be detrimental for architects on several levels.

To start, the tax hikes wouldn't be limited to just wealthy individuals, but would apply to 940,000 small businesses that file individually, according to a 2012 study by the Joint Committee on Taxation. This would punish architecture firms in particular, which tend to be small businesses. According to 2012 AIA estimates, "almost a quarter of architecture firms are sole practitioners, and more than 60 percent have fewer than five employees on their payrolls."

Beyond the direct effects on architecture businesses, if individuals with income above \$250,000 have less disposable income, they may decide to put off building or renovating homes. More broadly, cutbacks by higher income consumers will be a drag on the overall economy.

In contrast to Obama, Romney has vowed to repeal the \$1 trillion in tax increases in the healthcare law. Not only will he not increase marginal tax rates, but he's also proposed reducing them across the board by 20 percent (bringing the top marginal rate to 28 percent) and keeping the capital-gains tax at 15 percent. He's also proposed cutting the corporate tax rate, which is currently the highest among industrialized nations, to 25 percent, thus encouraging more business activity at home. Romney has said that he would offset these rate reductions by getting rid of various deductions and loopholes in the overly complex tax code.

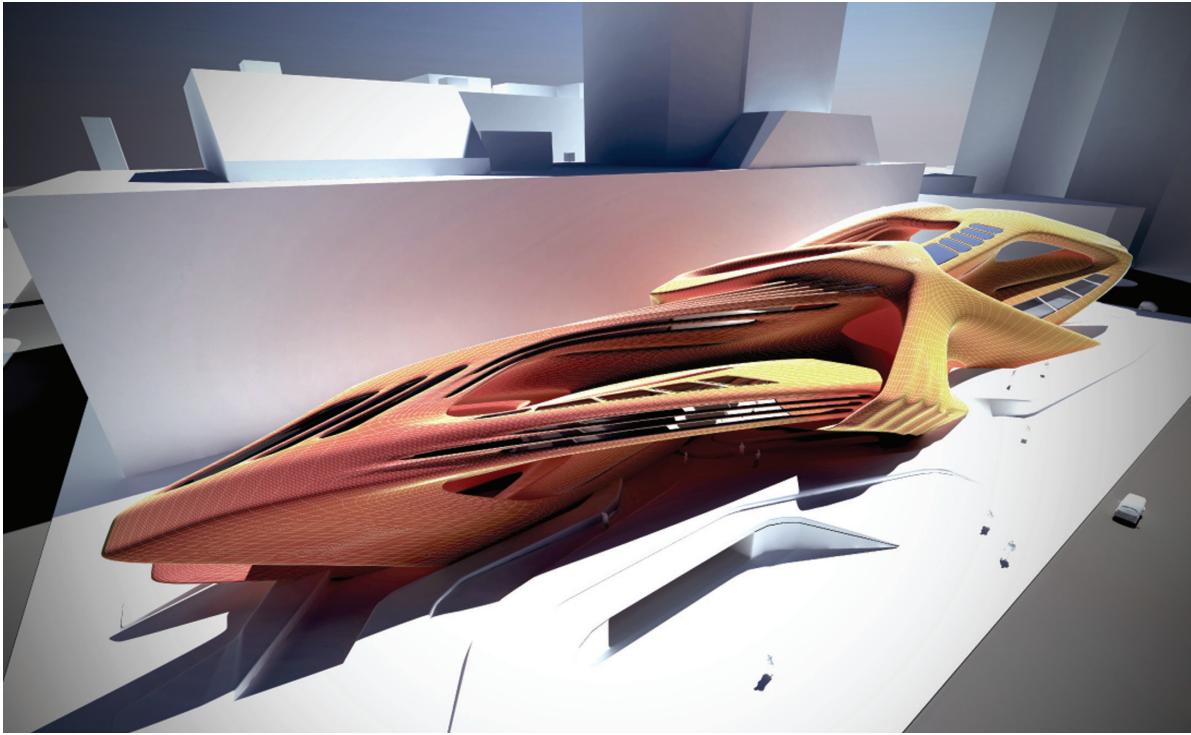
Beyond taxes, the candidates have articulated different views on regulation. During Obama's first three years in office, the federal government imposed 106 new major federal regulations, costing over \$46 billion per year, according to the conservative think tank the Heritage Foundation. "This was nearly four times the number—and more than five times the cost—of the major regulations issued by George W. Bush during his first three years," Heritage wrote in its report. The continued implementation of the healthcare and financial regulatory laws would increase this number dramatically if Obama were re-elected.

Romney has vowed to repeal the healthcare and financial regulatory laws, and review and eliminate regulations that place a



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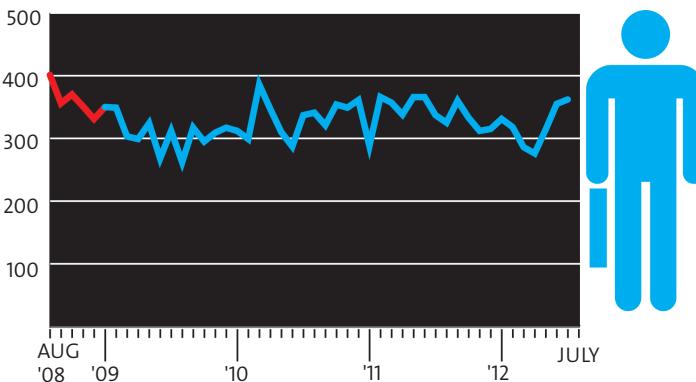
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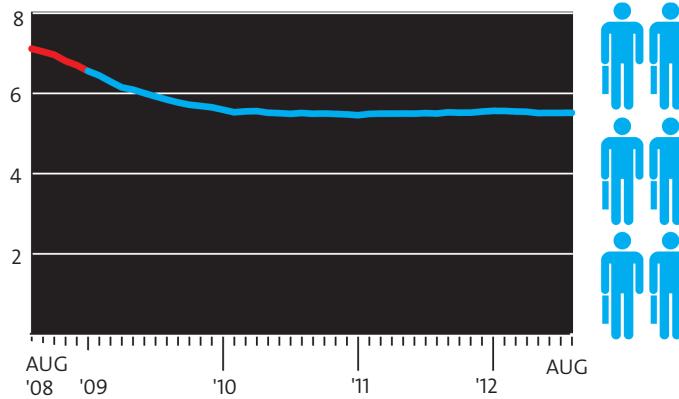
### HIRES THOUSANDS



New hires in construction, seasonally adjusted, from Aug. 2008 to July 2012

SOURCE: U.S. DEPARTMENT OF LABOR'S BUREAU OF LABOR STATISTICS

### ALL EMPLOYEES MILLIONS



Total construction employees, seasonally adjusted, from Aug. 2008 to Aug. 2012

SOURCE: U.S. DEPARTMENT OF LABOR'S BUREAU OF LABOR STATISTICS

cont. from page 96 ...

This isn't to say that the administration has been perfect for the architectural field; to wit, its lackluster response to the housing crisis has been tough for architects, whose fortunes are tied tightly to the performance of the housing market. But on a whole host of other concerns, the Obama administration has proven beneficial. This is especially true for the roughly 21 percent of architects who the IRS reports are self-employed.

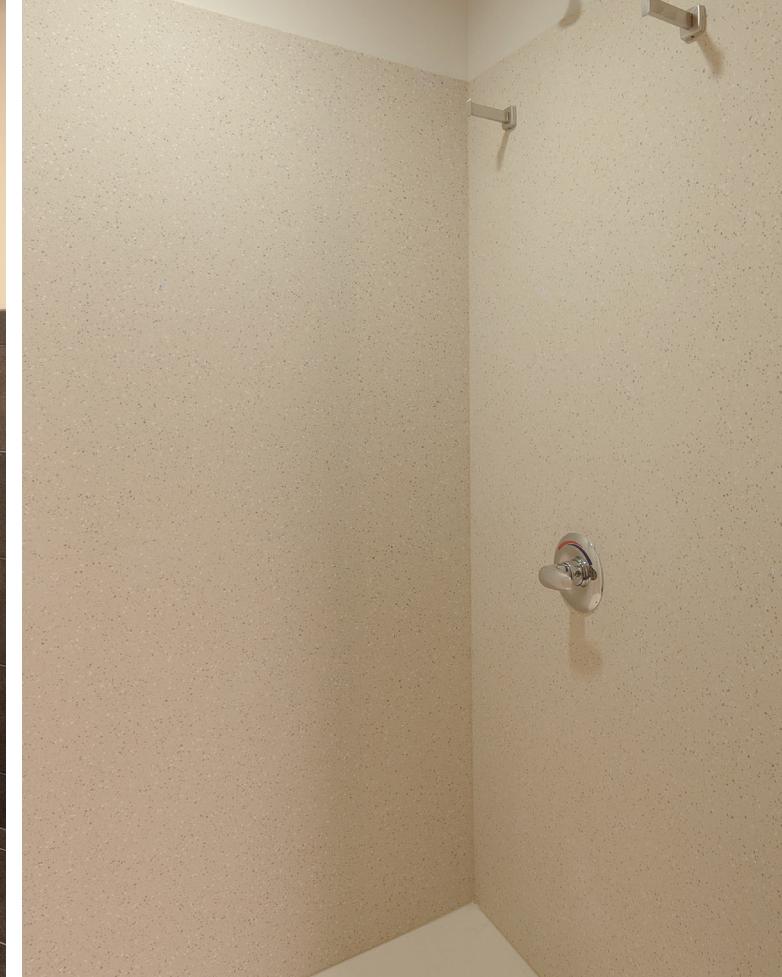
It's possible that Gov. Mitt Romney will see a need to pursue similar policies to Obama if he's elected president. After all, he built his fortune as a sensible businessman who took wise advantage of benefits provided by the government. But, it's also true that he's the leader of the Republican Party, which has little interest in government as a proactive tool for improving the economy.

And while the president isn't bound by the beliefs of his party, he is strongly influenced by them. A vote for the status quo isn't inspiring. In this case, though, it's the best bet for an economy that works for both architects and all workers.

cont. from page 98 ...

burden on the economy. Of particular interest to architects who have been hit hard by the housing crisis, Romney has proposed to "replace complex rules with smart regulation to hold banks accountable, restore a functioning marketplace, and restart lending to creditworthy borrowers." Romney has also vowed to undo Obama's executive order encouraging federal agencies to use unionized contractors in large-scale construction projects, which hurts non-union businesses and drives up project costs.

None of this is to guarantee that Romney would be the greatest thing to happen to architects since the invention of the blueprint. Obviously, all of his proposals will have to be fleshed out in more detail and will inevitably clash with legislative reality. But at least based on what the candidates are proposing, it's fair to say that there's a better chance that taxes would be lower and regulations would be fewer under a Romney administration, which is more conducive to spurring the type of economic growth needed to revive the architecture industry.



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## CRITIQUE

**BUILT FOR THE 1 PERCENT, OPEN TO THE REST**

RENZO PIANO'S SKY-SCRAPING LONDON BRIDGE TOWER, KNOWN BETTER AS THE SHARD, BRINGS NEW LIFE TO THE LONDON SKYLINE, BUT REMAINS INACCESSIBLE TO THE MASSES. IT ECLIPSES HIS NEARBY CENTRAL ST. GILES, WHICH MORE SUCCESSFULLY BALANCES BIG-TICKET DESIGN WITH THE NEEDS OF THE COMMON FOLK.



Renzo Piano's Shard clocks in at 72 stories—by far the tallest building on the city's skyline. The price tag for development and construction was \$2.4 billion, and that high cost translates to a look-but-don't-touch approach for all but the upper echelons of London society.

Text by **Richard Ingersoll**

**FEW PROJECTS REPRESENT** the 1 percent of the population that owns 40 percent of the world's wealth better than Renzo Piano, Hon. FAIA's so-called "Shard" in London's Southwark District. Opened a few weeks before the 2012 Olympic Games, the 309.6-meter (1,016-foot) crystalline tower now reigns as the tallest building in Western Europe, providing a sensational leap in scale—similar to the Eiffel Tower's effect on the skyline of Paris. Though promoted as a mixed-use complex, it caters exclusively to luxury functions. Meanwhile, across the Thames, the same architect's firm completed another project, the brightly colored Central St. Giles, in the densest part of the West End. Here the patronage proved only slightly less elite, but the scale has been sensitively handled to fit the existing fabric, and the city has gained an unexpected new public space in an area that previously had been off-limits.

Piano, who consistently provides technologically innovative responses to complex programs, has supplied London with two icons of prime urban value: the monument and the plaza. Each project also unwittingly represents a transition in the historical continuum. The Shard belongs to a syndrome that Lewis Mumford immortalized in his aphorism: "The bigger the monument, the shakier the institution." Other pundits have consigned it to the "Skyscraper Index," which claims that the construction of the tallest structure anticipates economic decline (e.g., the Chrysler Building and the Great Depression or the Sears Tower and the 1973 recession).

The Shard began construction just after the fateful debt crisis of 2008—and goes hand in hand with Dubai's Burj Khalifa, the tallest building in the world—which signaled the beginning of the severe economic crisis of the past three years. The development of

**\$40**

The cost of a single adult ticket to the View at the Shard, the publicly accessible viewing areas on floors 68 through 72 of Renzo Piano's recently completed skyscraper in London.



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Across town, Renzo Piano's less-celebrated Central St. Giles is a 500,000-square-foot mixed-use complex that cost a reported \$730 million. It caters to high-end businesses and occupants, but half of its 109 residences are affordable housing, and its central landscaped piazza, surrounded by restaurants and retail, is publicly accessible 24 hours a day.

the London tower was initiated in 2000 by Irvine Sellar and was salvaged in 2009 by a consortium from Qatar, allowing construction to begin. (Dubai, United Arab Emirates, was bailed out by a sheik from Abu Dhabi, United Arab Emirates, around the same time.)

Central St. Giles, on the other hand, developed in 2007 by the Japanese conglomerate Mitsubishi Estate, had a more straightforward process. While serving both high-end media corporations and high-rent dwellings, the compound contains a significant amount of public housing, and its fragmented orange, green, and yellow ceramic façades offer exceptional porosity and engage the architecture with the street. The complex exudes a desire to redirect private finance toward public benefit.

In theory, Piano objects to tall buildings, yet he has designed some of the tallest of the last decade, including the 52-story New York Times Building in Manhattan (2000–2007). This activity may derive from the banal matter of balancing the books of a very large office, which gains highly profitable fees from high-rise constructions. And he defends the London tower as embodying London's ex-mayor Ken Livingstone's ecological quest to densify the city by situating tall structures in nodal positions, in this case on top of London Bridge Station.

While most urban theorists agree that density holds the key to a more sustainable city, somehow such a goal got warped when all of this building's functions became blue-chip, including the observation platform (floors 68 to 72, with tickets costing £24.95 [\$40.47] per adult). From the multimillionaire penthouses in double-height units (floors 53 to 65, selling typically for £50 million [\$81.2 million]), to the five-star Shangri-La Hotel (floors 34 to 52), three stories of luxury restaurants, 26 floors of high-profile offices, a lobby and luxury retail at the base, there is no reason for anyone of the nonprivileged status to enter here, except to serve. The Shard seems uncannily close to the scenario in Fritz Lang's *Metropolis* (1927), in which the elite class of the future lives in aerial pleasure domes, while the drones (in London's case, today's wage-slave commuters trudging to work) suffer below grade. By law, the project had to provide a certain number of subsidized-housing units, which were conveniently removed somewhere far from the site.

But one cannot deny the Shard's shimmering fascination: It looms above the city like a vindication of the Futurist's challenge to the dreary ossification of the historic city. An elongated pyramid, the designers set independent planes of glass in staggered positions to confound an understanding of its true geometry; while at the apex, four glazed

flanges peel back at different angles, like shucks of a ripe ear of corn. The tower glistens like the "city crown" dreamed of by Bruno Taut and the Expressionists, creating an exclamation like Wren's steeples—the excitement of which few can resist.

Piano's mantra is "lightness," and he often achieves it through glazed surfaces. Here, he made the Shard's cladding completely of glass, but to avoid the monotony of a simple box with curtainwalls, he generated a dynamic skin of overlapping planes of glass, or wing-walls. Technically, they have sophisticated double skins, leaving a foot between inner and outer panes in which the air temperature can be neutralized and, if desired, where a computer can slip shades into place to resist glare. (Privacy is not an issue at such altitudes, and the views to St. Paul's Cathedral, the city, and the Olympic Park are literally worth millions.)

The section of Piano's skyscraper varies in a few places but, in general, the floor plan repeats 72 times with continually diminishing perimeters, ranging from 2,000 square meters (21,527 square feet) at the base to a quarter of that at the top. Set above the underground's London Bridge Station, which will be redesigned by architect Nicholas Grimshaw, the tower was developed with an adjacent project—the London Bridge Quarter, also designed by Piano's office—for a 16-story block of offices, doubling the amount of office space in the high-rise. Nearby is the Borough Market, which has become a gourmet's tourist trap, and the picturesque Southwark Cathedral. While the glass tower is a thrilling landmark that dominates London, it does not, like most of Piano's projects, offer a comfortable gathering place. Here, there's only a tiny, benchless plaza that people race through to get into the station.

Central St. Giles solicits a completely different feeling, one that is much more engrained in the life of London. Nestled between the Soho theater district and Bloomsbury, the project's several-hundred glazed, ceramic panels present a perforated skin that speaks to the street with the bright orange, lime green, and canary yellow colors of theater marquees. Here, as at the Shard, the designers have hung the façades as free planes with staggered placements, leaving lots of reveals that eliminate any sense of monolithic massing. At ground level, six small blocks surround an open court that can be accessed from different directions by five different paths, and Mediterranean-style cafés and restaurants occupy most of the grade-level spaces. On the upper stories, the volumes divide into a 15-story, two-part housing block on the west and a 12-story, U-shaped office block on the east.

The size of the office floor plates, of over

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4,000 square meters (43,055 square feet), are unique to central London and have attracted several important media companies, including NBCUniversal, Google, and Mindshare. They have primarily organized their workspaces like lofts to encourage the collaborative methods of people in media, most of whom seem progressive and appear to be under 40. The top three floors of this block boast roof gardens and special outdoor work areas, while all levels have corner "winter gardens"—special glazed terraces for private meetings. Urged by the London Council, the developers reduced the amount of automobile parking in the basement to 40 spaces, while providing showers and safe parking for hundreds of bikers. The basement also contains London's first biomass boiler, which provides central heating for the entire complex. Harvested rainwater is also used in the bathrooms and watering systems.

Housing presented the thorniest part of the planning of Central St. Giles. As with the Shard, the developers were obliged to provide a certain percentage of affordable units, but instead of relocating the lower-income residences to some other part of town, they kept them on-site. Half of the 109 units are social housing, rented for a minimum fee, while the other half are rather expensive apartments, selling for as much as £5 million (\$8.1 million). The good intentions go only so far, though, in that the expensive units' entries face the nice inner court while the poor ones enter from a dingy back street. Meanwhile, the elevations of the "piazza" were toned down to gray ceramic panels, leaving the bright colors for the sculptures and chairs, some of which belong to the restaurants while others are for those hanging out. (The space is always open to the public and has 24-hour security.)

Piano, in his quest to recreate the sense of freedom of association found in the Italian piazza, has given London a unique social space of great vitality. Such a program, with its youthful, loft-like offices; open-air restaurants; mixed-income housing; and, above all, public piazza that allows for the sort of biographical diversity that traditional cities have always provided, sends a clear message that no matter how much they may own, the city does not belong exclusively to the 1 percent.



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# reTHINK WOOD



Wood costs less – economically and environmentally – and it's one of the most beautiful, versatile, durable and renewable raw materials available. Branson Convention Center, Branson, MO. Architect: tvsdesign Atlanta, GA.  
Photo credit: Brian Gassel/tvsdesign



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## Building Materials Matter

### How Green Rating Systems, Codes, and Sourcing Practices Influence Specification Decisions

Government, businesses, and consumers are increasingly concerned with the implications of their purchasing decisions. From 'buy recycled' policies in the mid-1980s to reducing pressures on overburdened landfills and stimulating markets for recycled content, to today's purchasing strategies attuned to pressing global concerns such as carbon footprint, social justice, and resource utilization, consumers are becoming more aware of the consequences of their decisions. Smart purchasing is particularly pressing in the built environment where, according to the U.S. Green Building Council, building construction consumes 40 percent of the world's raw stone, gravel and sand; 25 percent of the world's wood. Operation consumes 16 percent of the world's water and approximately 40 percent of U.S. energy consumption is used to power offices and other buildings.

As a building material, responsibly-sourced wood contributes to efficient construction and operation. This article will discuss today's prevalent green rating systems, building codes and standards as they relate to ensuring responsible building practices. Also covered will be the sustainable sourcing of building products, focusing on wood as a building material, its economic, social and environmental implications, and how it factors into rating systems, codes and sourcing practices.

## RATING SYSTEMS—HOW SUSTAINABLE IS YOUR PROJECT?

Architects interested in designing sustainable buildings turn to green rating systems to measure how well they've achieved that objective. Around the world, systems have been developed to evaluate environmental and energy impacts of buildings. Beginning with the UK's Building Research Establishment's Environmental Assessment Method (BREEAM) in 1990, along with other rating systems, such as Leadership in Energy and Environmental Design (LEED®) in 2000, voluntary building rating systems are firmly established as third-party verified tools to evaluate a structure's green credentials. The most

## LEARNING OBJECTIVES

1. Discuss green rating systems, building codes and standards.
2. Describe chain of custody methods and certifications for wood.
3. Explain sustainable forest management.
4. List the social, economic and environmental implications of wood as a building material.



Rating systems determine a building's green quotient. Sykes Chapel Center for Faith and Values, Tampa, FL. Architect: tvsdesign Atlanta, GA. Photo: Brian Gassel, tvsdesign.

widely-used of those rating systems include the following:

#### BREEAM

The UK-based Building Research Establishment's Environmental Assessment Method (BREEAM) offers credits in ten categories added together to produce an overall score on a scale of Pass, Good, Very Good, Excellent and Outstanding. Established in 1990, BREEAM is the basis for most other rating systems and with more than 200,000 certified buildings and over 1,000,000 registered, it is the world's most widely used green building rating system. BREEAM assessments use recognized measures of performance, set against established benchmarks, to evaluate a building's specification, design, construction and use. The measures represent a broad range of categories and criteria from energy to ecology, and include aspects related to energy and water use, the internal environment, pollution, transport, materials, waste, ecology and management processes.

#### Leadership in Energy and Environmental Design (LEED®)

Developed by the U.S. Green Building Council (USGBC) in 2000, LEED® certification provides independent, third-party verification that a building,

home or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

LEED® is intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. Nearly 50,000 commercial projects are currently participating in LEED®, comprising nine billion square feet of construction space. Additionally, some 23,000 homes across the U.S. have earned certification through the LEED® for Homes program, with nearly 86,000 additional units in the pipeline. That's more than 159,000 registered and certified projects in LEED®.

The next version of LEED® is expected in 2013.

#### Green Globes™

The Green Globes™ system is used both in Canada and the U.S. It was adapted from a Canadian system of the same name, which evolved through an

iterative process from BREEAM Canada (which was a Canadian Standards Association's Sustainable Forest Management Standard published in 1996). Green Globes™ is also pegged as an alternative to LEED®, and noted for its ease of use as both a management tool for evaluating environmental performance of existing buildings as well as driving green certification and improved returns on investment.

In 2004, the Building Owners and Managers Association of Canada (BOMA) adopted Green Globes™ for Existing Buildings, which now operates under the name of BOMA BESt, which has certified 2,900 buildings. The Green Building Initiative operates Green Globes in the U.S. The web-based program for green building guidance and certification includes an onsite assessment by a third party and generates a written report that promotes interaction between team members and owners. Program modules support new construction, existing buildings and healthcare facilities.

#### Living Building Challenge

Considered the highest bar for environmental performance and ecological responsibility within the built environment, the Living Building Challenge was founded in 2009 by the Cascadia Green Building Council. The fact that certification is based on actual, rather than anticipated, performance is a key difference from other rating systems that do not hold buildings accountable for living up to performance models.

It is comprised of seven performance areas: Site, Water, Energy, Health, Materials, Equity and Beauty. These are subdivided into a total of twenty Imperatives, each of which focuses on a specific sphere of influence. To earn 'Living' status, or full program certification, projects must meet all assigned Imperatives and have proven performance through at least twelve consecutive months of operation. To celebrate successes and to educate other efforts, project teams may earn Petal Recognition, or partial program certification, by satisfying the requirements of a minimum of three categories, of which at least one must be water, energy or materials. To date, three projects have achieved Living Status.

<p><b>National Green Building Standard (NGBS)</b></p> <p>The National Green Building Standard is the only residential green building rating system approved by ANSI, the American National Standards Institute, as an American National Standard. Providing practices for the design, construction, and certification of green residential buildings, renovations, and land developments, the NGBS also sets requirements and environmental performance levels for green buildings and developments. Under the NGBS, homes can attain Bronze, Silver, Gold, or Emerald levels, corresponding to the number of green practices implemented. Any level of certification presupposes that all applicable mandatory provisions were met. As an ANSI-approved green building rating system, the NGBS not only provides a credible green home model, it offers builders a process for affordable green homes appropriate for the particular climate.</p> <p>The National Green Building Standard supplants the National Association of Home Builders' (NAHB) Model Green Home Building Guidelines created in 2006 that served as the starting point for the Consensus Committee that created the ICC 700-2008 National Green Building Standard. The Guidelines were officially phased out as an option for National Green Building Certification in September 2010.</p> <p><b>SBTool</b></p> <p>The International Initiative for a Sustainable Built Environment (iSBE) is a non-profit organization whose overall aim is to actively facilitate and promote the adoption of policies, methods and tools to accelerate the movement towards a global sustainable built environment. iSBE has an international Board of Directors from almost every continent dedicated to continuing development of the building performance assessment system, formerly known as GBTool, and now called SBTool, a flexible framework operating on Excel that can be configured to suit almost any local condition or building type.</p> <p><b>Built Green</b></p> <p>Started in the U.S. by home builders to</p>
---

encourage environmentally responsible building and construction by certifying homes that meet specific criteria. The programs are administered by local home builders associations, using a checklist-based system. Various levels of certification are possible, depending on the local program: typically, the higher levels require that the project be inspected and documented by a certified third-party verifier. In Canada, owned and managed by the Built Green Society of Canada, this system is open to members of participating Home Builders' Associations.

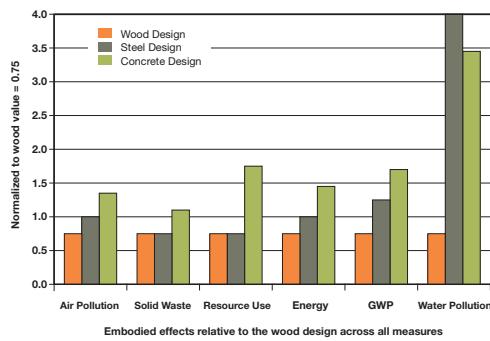
#### Rating Systems and Wood

The extent to which rating systems award points for use of wood varies widely. A Light House Sustainable Building Centre study<sup>(1)</sup> examined the ways in which the world's major green building rating systems incorporate wood, pinpointing where the ecological value of wood products was most recognized. Systems surveyed include: BREEAM, Built Green™, CASBEE®, Green Globes™, Green Star, LEED®, the Living Building Challenge, NAHB Model Green Home Guidelines, and the SBTool. Generally, every rating system offered credits that could be achieved through wood, primarily in these areas:

- Certified wood. Different rating systems give points or credits for different certification schemes, with some more inclusive than others.
- Recycled / reused / salvaged materials. Many rating systems give credits for recycled content, though only some allow salvaged wood to count towards this credit.
- Local sourcing. Most rating systems credit use of local materials, though the intent differs and ranges from supporting the local economy to reducing the environmental impacts from transportation. Some rating systems use local content credits with the intent of rewarding lower embodied energy and/or life cycle emissions, when in fact a life cycle analysis approach may be more appropriate.
- Building techniques and skills. More focused on prescriptive than performance standards, residential

rating systems frequently call for specific building techniques, such as advanced framing, that reference wood.

- Waste minimization. Many systems credit diversion of a certain amount of construction waste, or for minimizing wood waste.
- Indoor air quality. Most rating systems demand that all wood adhesives, resins, engineered and composite products contain no added urea formaldehyde and have strict limits on VOC (Volatile Organic Compound) content.



LCA studies consistently show that wood is better for the environment than concrete or steel when it comes to embodied energy, air and water pollution, global warming potential and other environmental impact indicators.

Source: Data compiled by the Canadian Wood Council using the Athena EcoCalculator with a data set for Toronto, Canada

According to the study, rating systems for single family homes in North America were the most inclusive of wood products, while those for commercial buildings and buildings outside of North America were the least inclusive. In rating systems for commercial buildings, eight percent and 18 percent of credits related to wood, with LEED® for Commercial Interiors offering the most credits. The study recognized that there are gaps in most rating systems in areas where wood may play a positive role. Primary among them are: acoustical performance, life cycle analysis and material efficiency—attributes of wood to which architects themselves often pay considerable attention. "Wood can help designers create greener buildings, yet we found that wood's most significant ecological benefits — that it is the only carbon

neutral construction material and that it can significantly reduce a building's life cycle impacts—are largely unrecognized by the most commonly used rating systems," says Helen Goodland, former Executive Director of the Light House Sustainable Building Centre. While rating systems have done a good job in focusing attention on greening the built environment, they are a work in progress, changing as new information becomes available and continuing to improve. "Rating systems have become the definition of energy efficient and environmentally responsible building, and that represents a limited view. Yet rating systems are continually evolving," Goodland says. "How wood is considered is surely an area of interest to be explored."

### GREEN BUILDING CODES AND STANDARDS

While the green rating systems such as LEED® have done much to raise the consciousness of green building, green rating systems are purely voluntary. Building codes have traditionally regulated safety in the built environment, and now they are incorporating green building techniques. They are legal requirements that mandate construction projects comply with certain energy efficiency and environmental health standards.

A driver of modern green building codes is the International Green Construction Code (IgCC), the first model code to include sustainability measures for the entire construction project and its site—from design through construction, certificate of occupancy and beyond. Published in March 2012, the new code aims to make buildings more efficient, reduce waste, and have a positive impact on health, safety and community welfare. With the IgCC initiative beginning in 2009 with sponsorship of the American Institute of Architects (AIA) and American Society for Testing and Materials (ASTM) International, the code creates a regulatory framework establishing minimum green requirements for new and existing buildings. The IgCC offers flexibility to jurisdictions that adopt the code by establishing several levels of compliance, starting with the core



Indian Point River, Bowron Valley. Growing environmental awareness gave rise to third-party forest certification in the 1990s. Courtesy: [www.naturallywood.com](http://www.naturallywood.com)

provisions of the code, and then offering "jurisdictional requirement" options that can be customized to fit the needs of a local community. A jurisdiction can also require higher performance through the use of "project electives" provisions. To ensure enforceability, the IgCC was reviewed by the same experts who develop building codes that officials enforce daily. Early versions of the IgCC released during the development of the code already have been put into use by states and jurisdictions demonstrating the need and demand for safe and sustainable construction. In 2011, Maryland was the first state to enable local jurisdictions to adopt the code.

The code acts as an overlay to the existing set of International Codes, including provisions of the International Energy Conservation Code and ICC-700, the National Green Building Standard, and incorporates the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 189.1 as an alternate path to compliance.

ASHRAE Standard 189.1 establishes minimum green building requirements and is the nation's first code-intended

standard for high-performance buildings. It provides a green building foundation to design, build and operate high performance buildings, and covers key topic areas of site sustainability, water-use efficiency, energy efficiency, indoor environmental quality and the building's impact on the atmosphere, materials and resources. As mentioned above, Standard 189.1 now serves as a compliance option with the newly published IgCC—a change that allows permit applicants rather than the authorities having jurisdiction to use Standard 189.1 as the path of compliance. In earlier versions of the IgCC, Standard 189.1 was deemed a "jurisdictional compliance option," meaning code jurisdictions had to choose between the provisions of Standard 189.1 and the IgCC in determining which compliance path to take.

### CALGreen

The CALGreen Building Code, initially adopted in January 2011, made

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LAKWOOD GARDEN MAUSOLEUM



# LAKWOOD MAUSOLEUM



BUILT INTO A HILLSIDE IN ONE OF MINNEAPOLIS'S MOST HISTORIC CEMETERIES, HGA'S IMPECCABLY DETAILED GLASS-AND-GRANITE STRUCTURE FUSES WITH THE LANDSCAPE IN A RESPECTFUL, YET UNCONVENTIONAL, TAKE ON THE MOST PERMANENT OF ALL BUILDING TYPES.

Text by Katie Gerfen  
Photos by Paul Crosby

**WHEN LAKWOOD CEMETERY'S** existing Memorial Mausoleum began to run out of space, there was no option to expand, remodel, or tear down and start anew. Each wall represented so much more than an assemblage of load-bearing beams; every nook and cranny represented someone's final resting place. Lakewood's approach to a new, second, mausoleum building was different than most other U.S. cemeteries. Instead of pursuing a cost-effective design/build structure, the 141-year-old Minneapolis institution held a design competition, seeking a structure that would meet basic needs and fulfill the long-standing desire of the board of trustees for

beautiful buildings—as far back as 1908, they demolished a chapel because they felt it “did not fit with the beauty of the cemetery,” says Lakewood president Ronald A. Gjerde Jr.

So the stakes were high for Joan Soranno, FAIA, and her team at HGA to take on a historic setting and an unfamiliar typology. “Contemporary architecture today is very edgy and it wants to provoke ... [but] when you come to a cemetery and you’re sad, and heartbroken, and grieving, you don’t want to be provoked,” Soranno says. The design process “was always under the lens of: Is it timeless? Is it serene?”

The Lakewood board was won over by Soranno’s passion—she admits to reading nearly 20 books on the subject before the interview—so much so that they readily agreed to an

unconventional resiting. Initially, the board assumed that the new structure would be entirely above-grade—one reason that mausoleums have become popular, Gjerde says, is because “some people just don’t like the idea of being buried in the ground.” But HGA posed a radical alternative: Embed the bulk of the building into an existing hillside, “because the true power of this place is its landscape,” Soranno says.

The result is that the new 24,500-square-foot Garden Mausoleum, by intention, largely fades from view. From the street, all that can be seen is a 5,500-square-foot granite pavilion that sits amid a verdant landscape. The pavilion is clad with hand-laid courses of dark-hued, split-faced granite block. The texture of the stone was critical, Soranno says, because “touch is such an



**Previous spread:** The entrance to the Lakewood Cemetery Garden Mausoleum is surrounded by curving walls covered in a mosaic made from Carrera marble and Mexican glass tile from RBC Tile & Stone. The pattern is carried through to detailing in the entry doors by Ellison Bronze. **This image:** The building is clad in two varieties of split-face, hand-laid stone from Cold Spring Granite. The green roof is dotted with skylights, lined in bronze collars by MG McGrath, which admit natural light into the crypt and columbarium rooms below.

important part of commemorative architecture; we wanted materials that were very tactile."

To the side of the pavilion is a green roof (which reads from this level as a lawn) marked by a row of carefully graded berms, each of which culminates in a bronze-collared skylight. These glazed openings are either rectangular or circular in form; each shape denotes crypt or columbarium rooms below, respectively.

Surrounding the bronze entry doors that lead into the rigidly orthogonal pavilion are a series of soft curving planes covered in a marble and glass mosaic. Project team member Nick Potts, AIA, oversaw 20 iterations of patterning before the team found one that struck the appropriate balance between geometric and organic forms. Installation took nearly two years to complete because of the freeze-thaw cycles of Minneapolis winters.

Inside the pavilion, hand-rubbed plaster ceilings and white marble floors of the foyer

give way to a multipurpose reception space with plaster and warm mahogany walls. The attention to detail is impressive: Even the letters in the exit signs are carefully outlined in plaster so as not to interrupt the surface of the wall.

But it is down a flight of marble stairs to the lower level that the bulk of the program lies. Beneath the pavilion are a committal chapel, a grieving room, and a mechanical space. To the east is the long corridor off of which the columbarium and crypt rooms are situated. Clad in marble, wood, and stone, and filled with filtered daylight (either from the skylights or through windows that look out onto manicured gardens), the rooms are a suite of subtle permutations on the same theme.

It is important to remember that there is a retail component in play, and not an inexpensive one. Single crypts at Lakewood Cemetery range from \$7,500 to \$25,810, and single niches can cost more than \$8,500. With 879 crypts (which hold

coffins) and 4,620 niches (for cremated remains), the new Garden Mausoleum "can extend our economic life by 75 to 100 years," Gjerde says. More than that, the decision of where one is buried is, well, rather permanent. If all the floors were green, it could discourage someone who didn't like that color from choosing the facility. As a result, there are crypt and columbarium rooms with skylight views or garden views, with floors in green-, pink-, or honey-colored onyx, and with wood or plaster ceilings.

This level of careful consideration of every detail made the Garden Mausoleum an all-consuming project—but it was also a personal one: Lakewood is in Soranno's neighborhood and she and project architect John Cook, FAIA, married in the cemetery's 1910 chapel. Soranno still visits the new building, where she and Cook have purchased space, every weekend. "I pull weeds. I straighten," she says. "This is our eternal resting place. It has to be pristine."



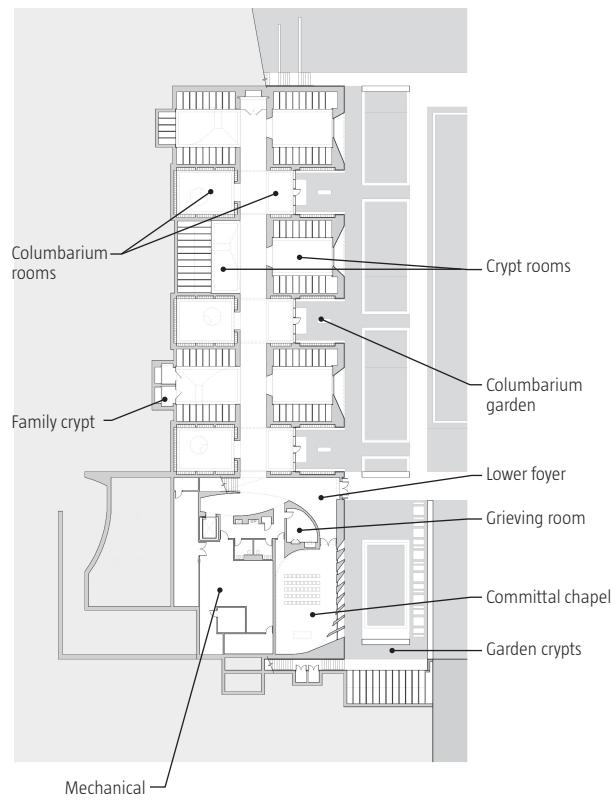


**Opposite:** In the foyer, white marble floors from Grazzini Brothers & Co. and a white Venetian plaster ceiling from Armourcoat flow past a stair into a reception space that offers landscape views out through Viracon glazing. **Above:** Underneath the reception space is the commitment chapel. The curve of the wall was designed to capture the raking light on the Venetian plaster walls and rift-sawn white oak floors. The mahogany lecturn, table, and urn stand were designed by HGA to complement the space. **Left:** Crypt and columbarium rooms—which feature preassembled columbaria from Eickhof Columbaria behind custom granite or marble niche covers—are situated off a double-loaded marble and granite-lined corridor.

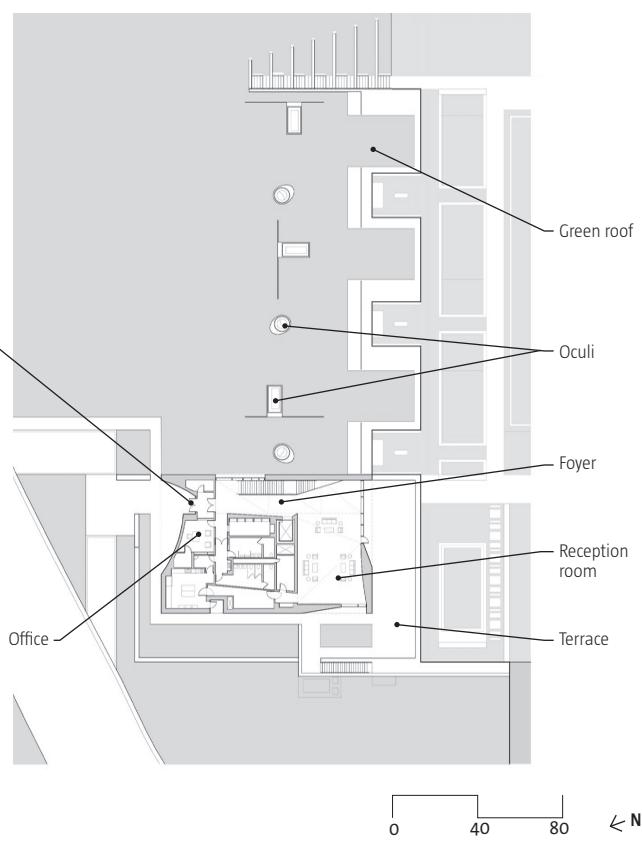
**This image:** Crypt rooms inset into the hillside are lit by rectangular skylights. The admitted daylight plays off of the white marble crypt covers and onyx floor tiles from Grazzini Brothers & Co. **Opposite:** Because it is important to present people with options when they are selecting their final resting places, each room has a slightly different combination of materials and finishes. Here, a granite-clad crypt room with a mahogany ceiling overlooks the garden through a 9-foot-square picture window. The onyx floor is green instead of honey.



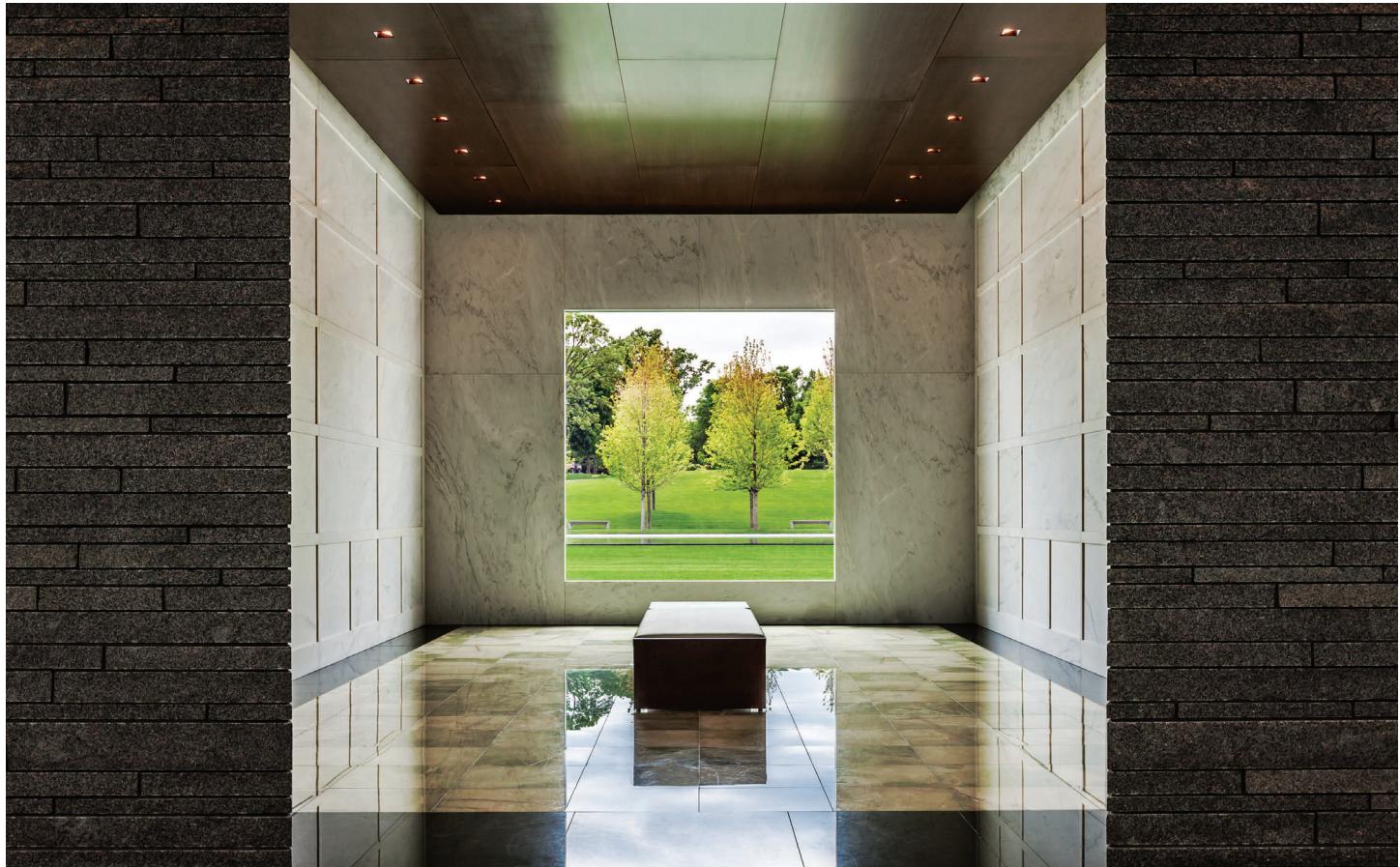
**Garden-Level Plan**



**Street-Level Plan**



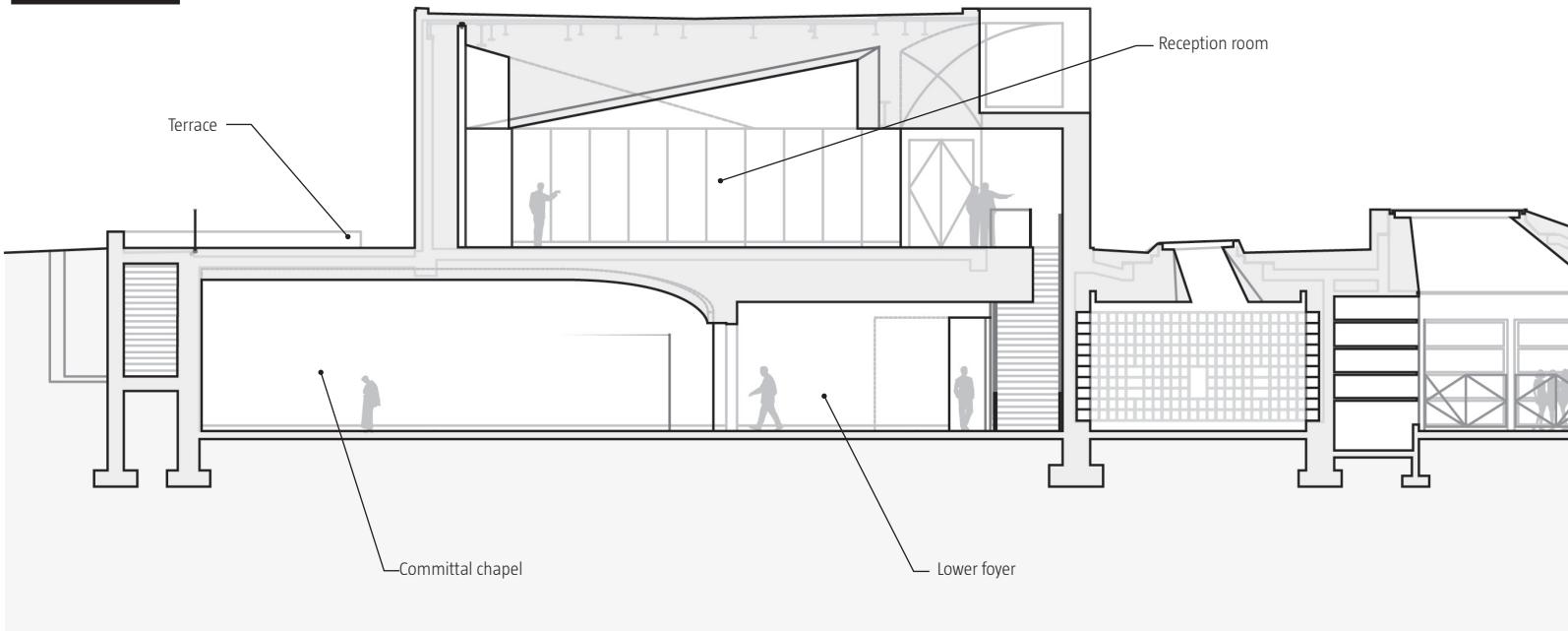
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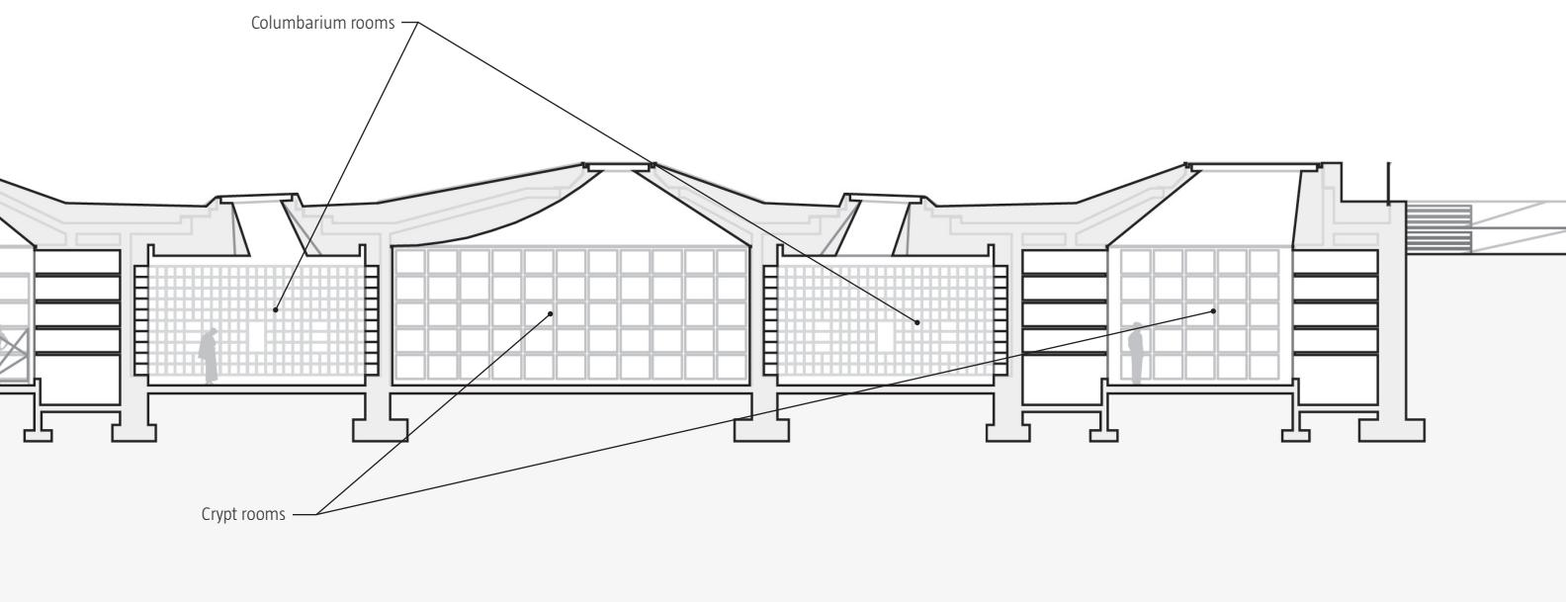


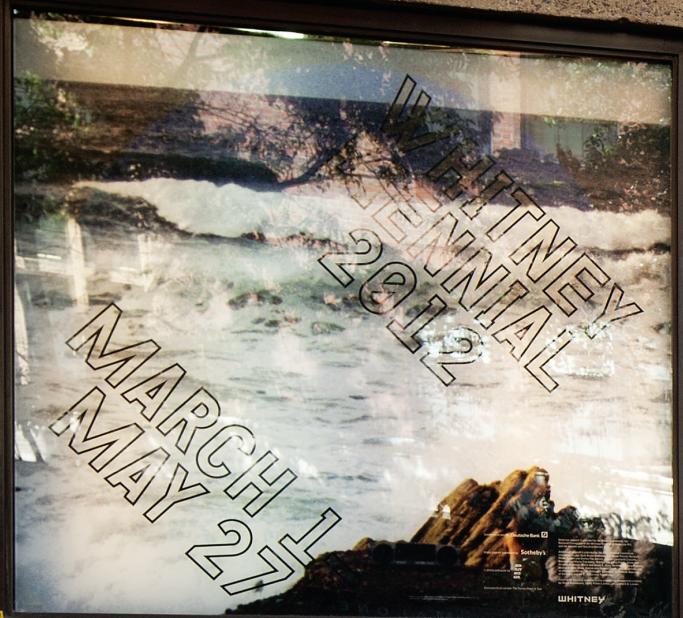


From the garden, the full massing of the mausoleum structure is revealed. The mosaic motif from the entrance, installed by CD Tile & Stone, is continued around the windows of the committal chapel and crypt rooms. Columbarium gardens between the crypt rooms accommodate exterior niches for those who prefer interment in the garden setting.

#### **West–East Section**









# BREUER MEETS LOT-EK

SHIPPING-CONTAINER MAESTROS ADA TOLLA AND GIUSEPPE LIGNANO'S TEMPORARY EDUCATION STUDIO TAKES OVER THE COURTYARD OF THE WHITNEY MUSEUM OF AMERICAN ART.

Text by Ian Volner

**NEW YORK'S WHITNEY MUSEUM** of American Art has moved house a number of times in its 82-year history. Starting out in a row of brownstones in Greenwich Village, the collection of prized Modernist and contemporary masterworks' first move took it to a dryly Modernist facility in midtown, which it occupied until 1966, when the institution relocated further uptown to the now-iconic Marcel Breuer structure on the Upper East Side. In 2015, after several false starts, the city is set to get yet another Whitney, a gleaming white wedding cake from Italian architect Renzo Piano, Hon. FAIA, which will be adjacent to the popular High Line in the Meatpacking District.

The latest move has already begun, with administrators and support staff pulling back from annex spaces around the Madison Avenue location. While the process is under way, the museum (or a part of it, at least) is getting its most unusual facility to date: a construct of metal shipping containers, 18 feet high and 24 feet wide, wedged improbably in the moat that fronts Breuer's upside-down ziggurat. The temporary structure has been hosting the museum's educational and public-outreach programs since it was completed in March, and will stay open at least until the moving trucks show up.

Dubbed the Whitney Studio, the installation is the work of Lot-ek, a practice that has made a name for itself reusing cast-off freight boxes and other industrial relics. "We've been working on containers for 15 or 20 years," says Ada Tolla, Intl. Assoc. AIA, who founded the firm with Giuseppe Lignano, Intl. Assoc. AIA, in 1993. Lot-ek had teamed up with the Whitney on a couple of other occasions—including for the 2004 Mobile Dwelling Unit, another container structure on the same spot as the studio—making it the odds-on favorite for the job when the museum first hatched the concept last year.

The idea of deploying a shipping container, and using shipping-container specialists, was driven by at least one major practical constraint. As Whitney education chair Kathryn Potts explains, "The reality is we needed somebody to do this on the cheap." So Lot-ek and its clients created the 720 square feet of classroom and art-making space for \$400,000. Doing it within the existing lot line of the building meant that the

team could also skip protracted negotiations with neighbors. And the firm's expertise helped to collapse the design process, from commission through installation, into five months.

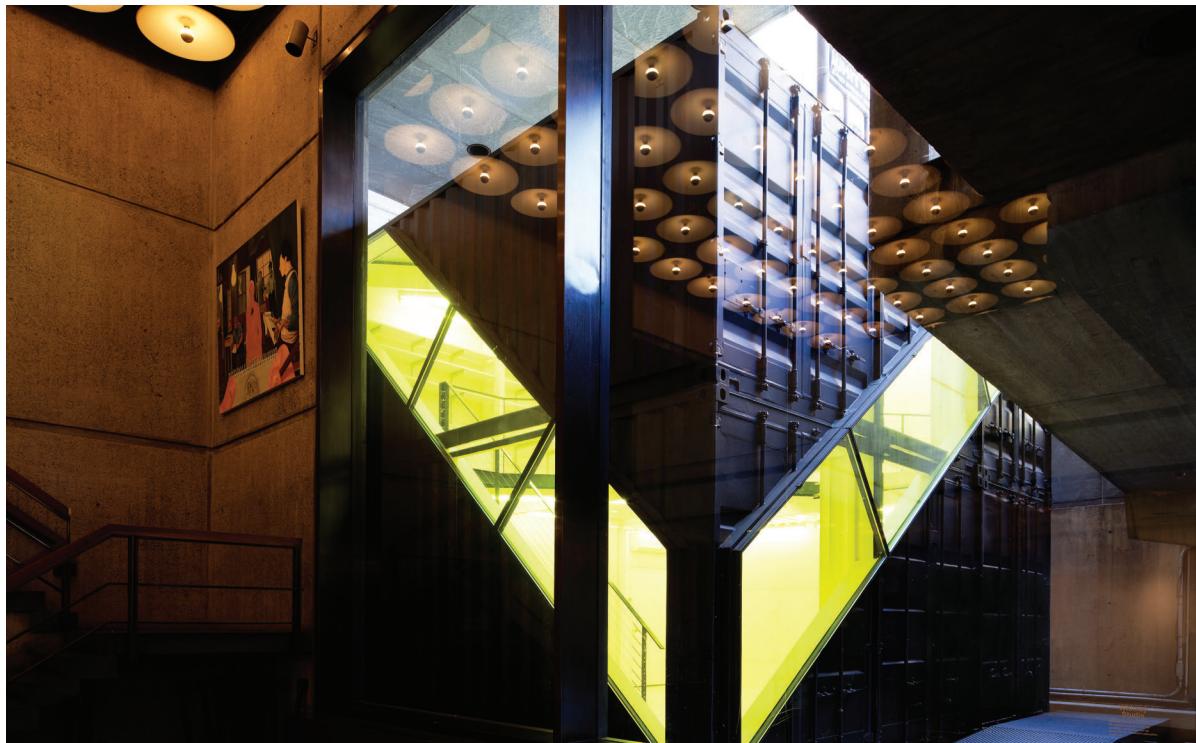
Even for container experts such as Lot-ek, the project posed unique challenges that required novel solutions. For one thing, the program called for a two-story interior, with teaching space below, workstations above, and a slender stair connecting them. The firm ended up stacking three standard-sized containers on top of three jumbo ones, clocking in at 9 feet 6 inches tall—a unit size the firm had rarely worked with before. Bigger boxes meant more bulk to get into the well that separates the museum from the sidewalk—to visitors, the most obvious squeeze is the width of the studio, which leaves free only 22 inches between the museum and the street in the 25-foot-10-inch-wide well. The containers were modified in New Jersey but assembled on site, and Lot-ek helped sketch out a delivery system involving cranes, rollers fixed to the crates, and long steel tracks, which were used to hoist and then slide the components into place. The job was done over two tense weekends in February. "We were just crossing fingers that what we studied and planned with the engineers would work," Tolla says. "All the guys at the Whitney were there. Including their lawyer."

Putting a corrugated metal cube up against the textured heft of a New Brutalist monument may seem a bit irreverent, but the architects felt a special respect for Breuer's landmark design. "Occupying the building is obviously something really special," Tolla says. Except for a single corridor for storage and mechanical services, the studio is completely disengaged from the museum. Lot-ek even made the container gesture toward its extraordinary context, in part by incising it with angled windows, clad in vivid yellow glazing, which echo the lines of the concrete bridge that spans the courtyard.

Thousands of visitors pour over the bridge each day toward the museum's entrance, and the windows bring the Whitney's public programs into the open. "Education departments of big museums are often located in the basement or in a separate wing," Potts says. "But now we're front and center."

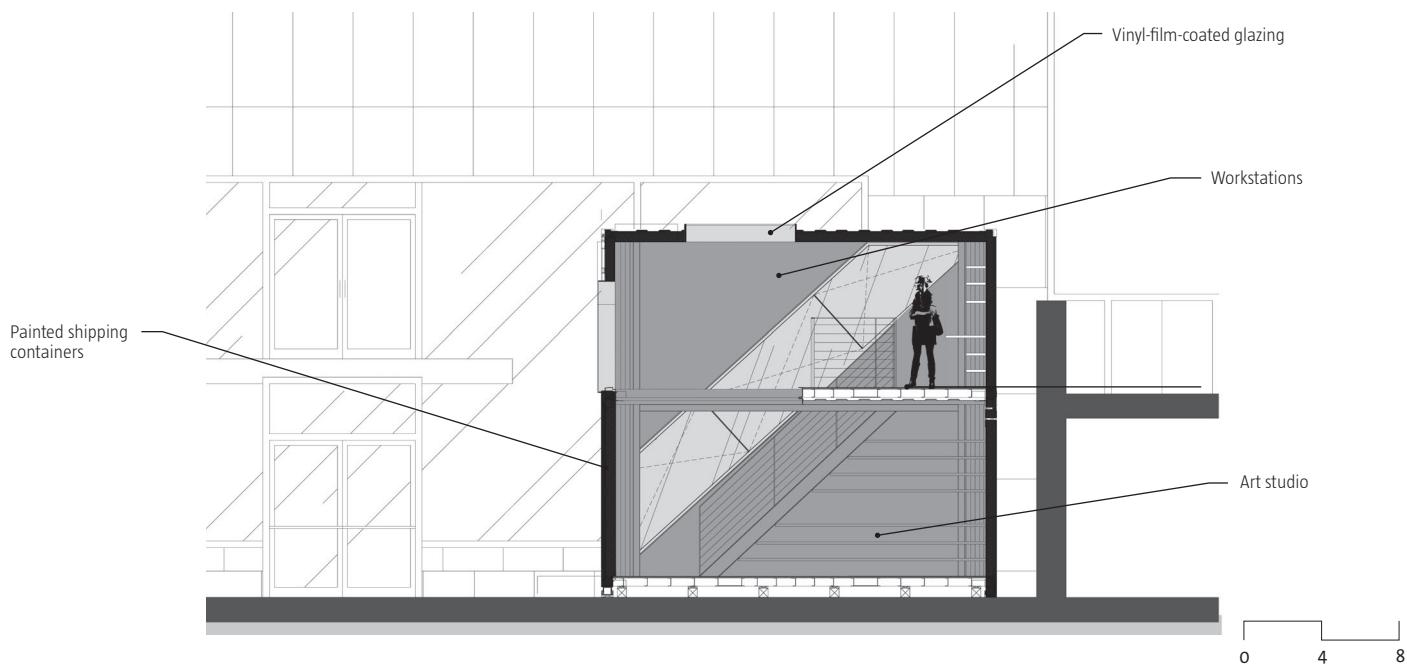
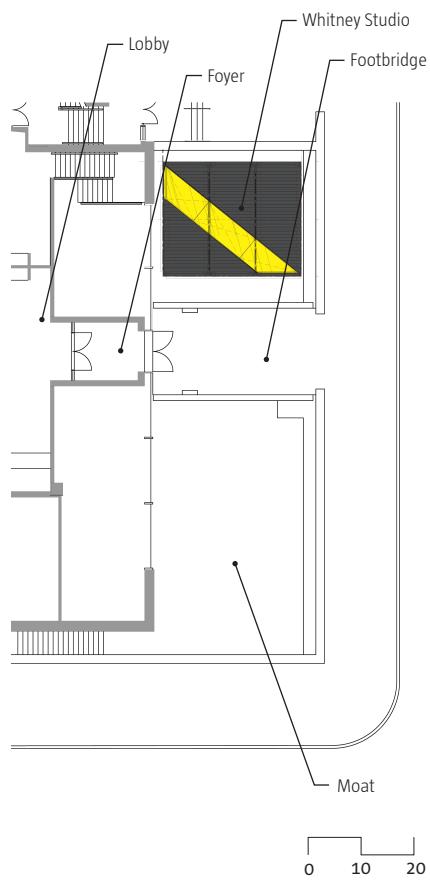
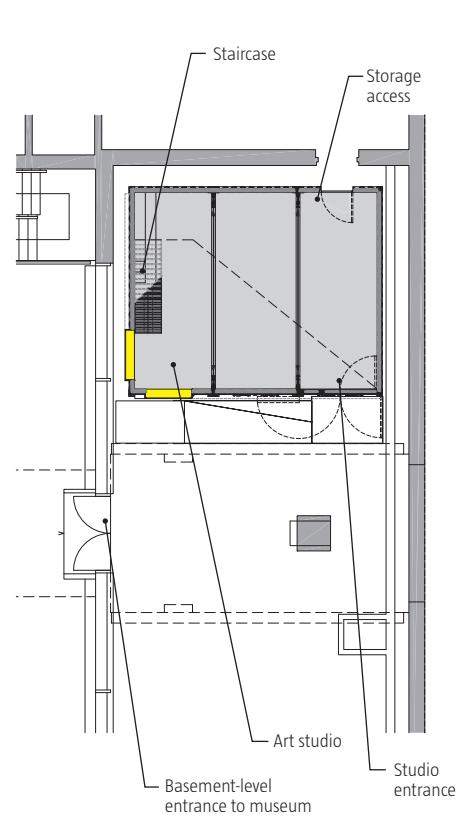
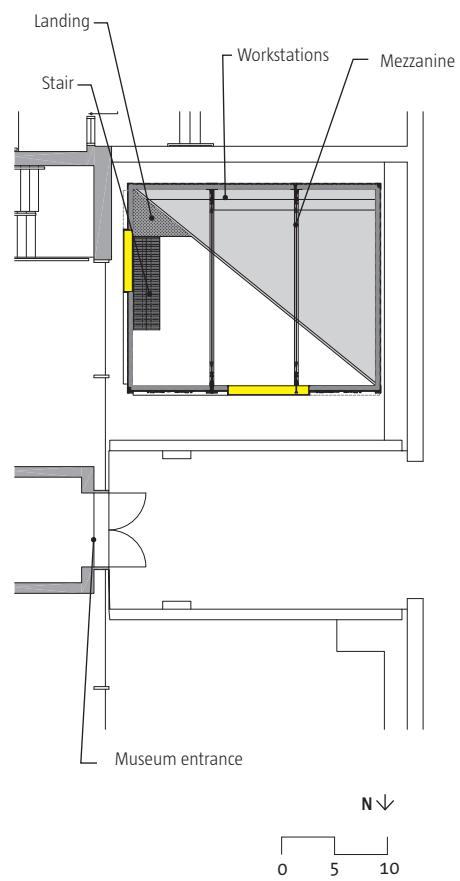
**Previous spread:** Fashioned from six Cor-Ten steel shipping containers, modified by TRS Containers in New Jersey, the Whitney Studio makes its presence known with a black-and-yellow exterior coated in paint by Hempel. **Left:** Visitors access the studio by exiting into the courtyard from the museum's lower level, and enter the studio through a sliding door on its northern face. From inside the Breuer building, there is a clear view to the studio's vivid yellow glazing—a custom job (with a vinyl film) by Chris Otterbine from the Orchard Group.

**Right:** Inside the studio, the walls and ceiling are clad in panels from Push Design, and the ground-floor art studio is outfitted with Vitra tables and Knoll chairs; the space is lit by Legion Lighting Co. fixtures, which are connected by Lutron Electronics Co. controls.



PREVIOUS PAGE AND LEFT: DANNY BRIGHT; RIGHT: IAN ALLEN



**North–South Section****Site Plan****Basement Plan****Ground-Floor Plan**



The floor of the second-level loft is formed from corrugated Cor-Ten steel, and was constructed as part of the container modification process. The loft is accessed via a narrow stair, which passes in front of the custom glazing that cuts through the container surface. The studio is cooled with a dual-zone, split system HVAC from Mitsubishi Electric, which uses different fan-coil units for each level.

# CUTTY SARK RESTORATION

GRIMSHAW'S NEW LONDON BERTH FOR BRITAIN'S LAST TEA CLIPPER MIXES ENGINEERING PROWESS WITH NAUTICAL PRESERVATION.

Text by William Underhill

Photo by Jim Stephenson

**WHEN THE ARCHITECTS** at the British firm Grimshaw won the contract to restore the Cutty Sark, they were taking on a national treasure. The last and greatest of the tea clippers, the ship, now berthed in London, is a matchless monument to the Age of Sail. Launched in 1869, she was then among the fastest sailing ships afloat, designed to carry tea from China at a time when speed to market was crucial. And not only was she quick, she was elegant and innovative, too. With the sleek lines of a modern racing yacht, her wooden hull, measuring 84 by 11 meters (275 by 36 feet), concealed ribs of iron. "I have worked on some big projects in the past, but this one was unique," says Diane Metcalfe, an associate director at Grimshaw, who helped to oversee the project until its completion this year.

The ship, a masterpiece of 19th-century construction, was showing her age by the 1990s. Since 1954, she had sat in a dry dock next to the Thames in Greenwich, open to the public. Planks were rotting, corrosion had destroyed much of the iron frame, and the ship was slowly bulging out of shape. Restoration was vital, but meeting the brief of the vessel's owners, the Cutty Sark Trust, was no easy task. Space at the site was tight, yet the trust wanted better access and more facilities for retail and exhibition space. Compounding the problem was the ship's acutely sensitive location, right next to Sir Christopher Wren's Old Royal Naval College at the heart of a World Heritage Site.

Grimshaw's solution was bold. A new steel-and-glass-diagrid canopy envelopes the Cutty Sark, meeting the hull of the ship at what was once the waterline, and continuing down to encompass a new entrance and retail spaces. To relieve stress on the ship's structure and to redistribute the load, the team worked closely with engineers from Buro Happold, and devised a system of supports: The vessel now rests on

12 triangular steel frames—formed from horizontal beams and diagonal ties—shaped like inverted coat hangers, inserted through the hull. These frames carry the weight of the Cutty Sark's keel and mast back up to new external support points.

A new access tower beside the ship (which also contains elevators and restroom facilities) directs the flow of visitors from the main entrance through the lower cargo deck at the ship's stern up onto the main deck. From there, visitors proceed to the concrete dry-berth, a space under the ship left over as the result of raising and suspending the Cutty Sark 3 meters (9.8 feet) off the ground (see "Tool Box: Raising the Cutty Sark," page 133). This move provides 1,000 square meters (10,764 square feet) beneath the ship on the dry dock's floor for use as a café, exhibition space, and corporate entertaining.

Work began in 2004, but a fire three years later set the restoration back several months. (Thankfully, the damage was limited). When Queen Elizabeth II finally reopened the Cutty Sark to the public this April, the restoration results were spectacular. For the first time, visitors can walk beneath—and touch—the ship's hull, reclad in dazzling Muntz metal, a gold-colored alloy of copper and zinc. "It's a cathedral-like space," Metcalfe says. "It still gives me goose bumps just to go down there."

Inevitably, the £50 million (\$81.2 million) reimagining of the landmark has resulted in divided opinion. Some say the glass canopy obscures the view of the hull, and that raising the ship above ground has robbed it of its nautical character; the interior is less controversial, and many say it is a fitting tribute to a national treasure. Love it or hate it, the project ensures the survival of a relic from England's great naval history for at least another 50 years, when it may be time to revisit the Cutty Sark again.

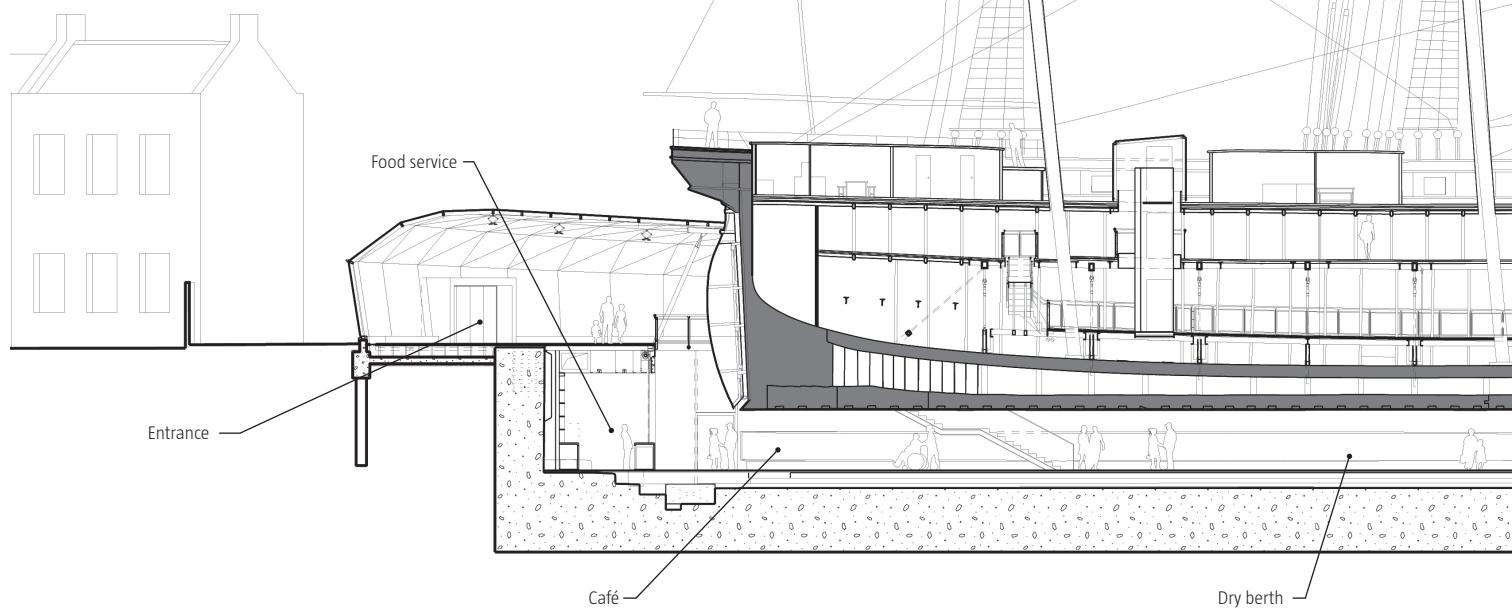
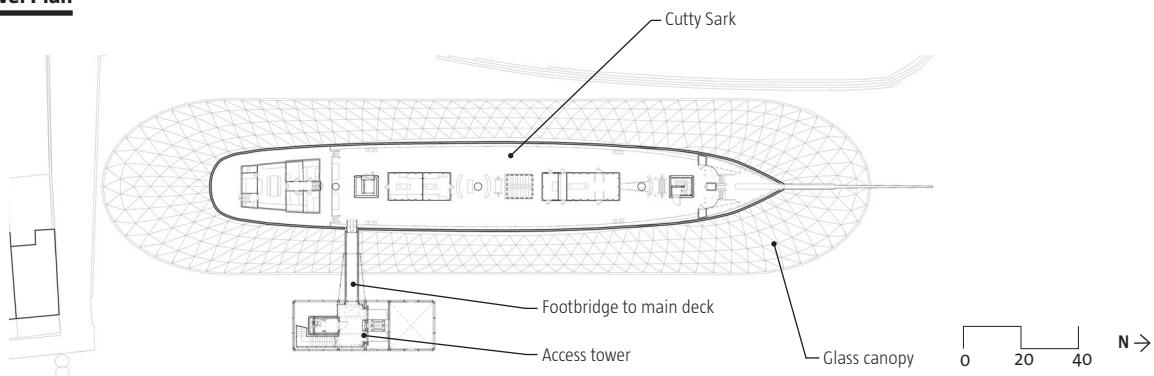


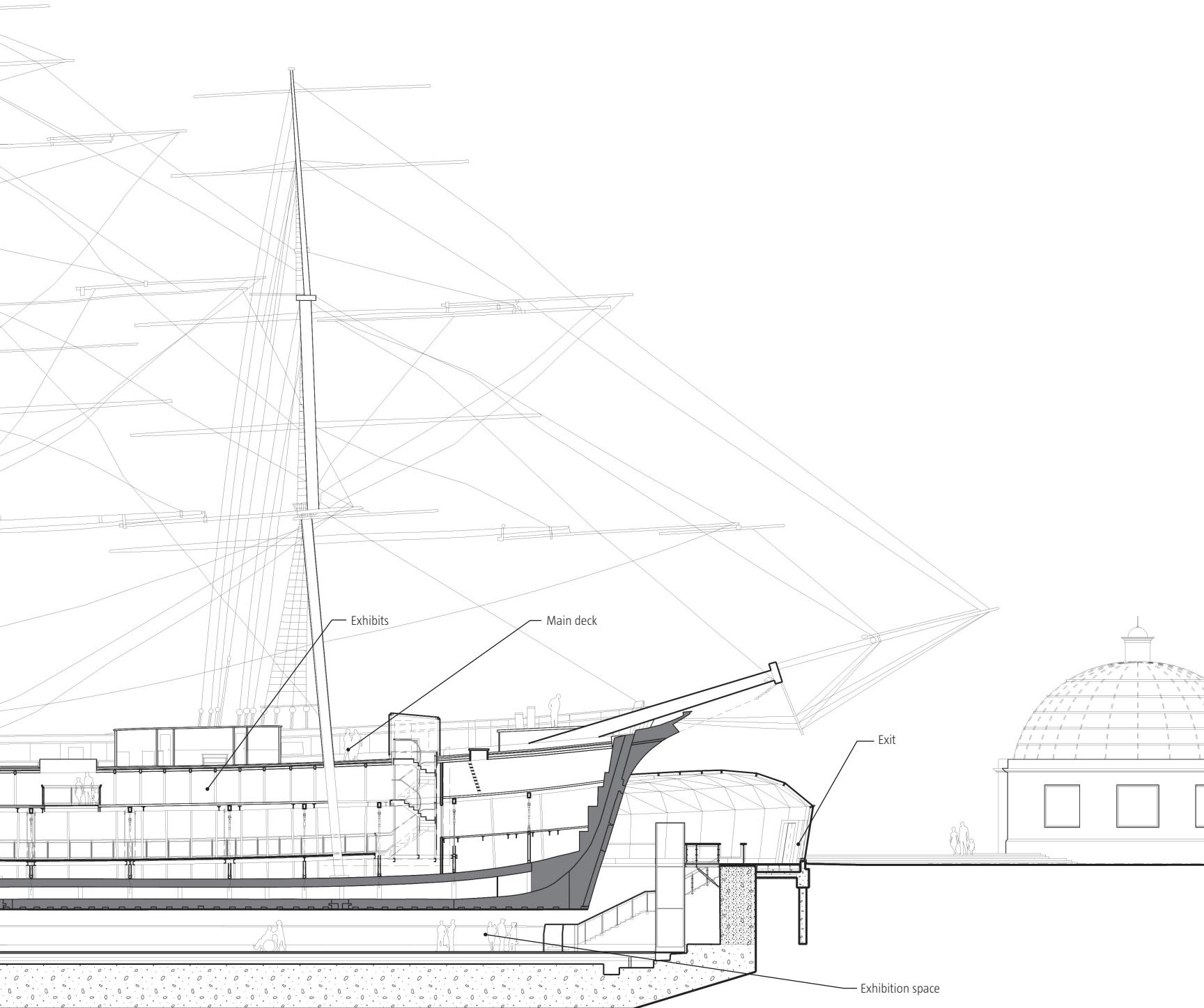






**Previous spread:** Fully restored, the Cutty Sark is now enclosed by a diagrid shell with glazing from Seele, which meets the hull just above the clipper ship's waterline. **This image:** Inside the canopy, visitors can see that the ship has been raised off the ground and is supported by 24 steel struts designed by Buro Happold and manufactured by S H Structures. Part of the space underneath the ship is now used for permanent exhibitions.

**South-North Section****Main-Deck-Level Plan**



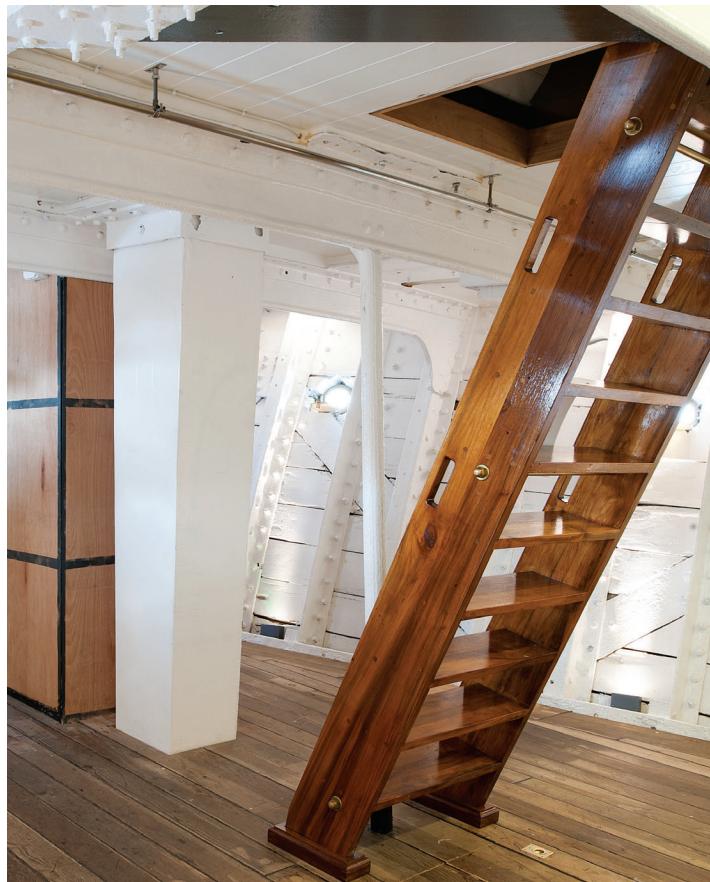
## TOOL BOX: RAISING THE CUTTY SARK

Hoisting the fragile 650-ton vessel to its new resting place 3 meters (9.8 feet) above ground was a frightening prospect. Even after inserting 150 tons of strengthening steelwork into the ship, structural engineers could not be sure how the Cutty Sark would respond. Over the years, corrosion had affected some parts of the hull more than others: There was a real risk that she might twist and fracture during the operation.

"The moment of truth is when it lifts off the ground," said Wolf Mangelsdorf of Buro Happold in a BBC interview shortly before the lift. "That's the point when you know if you have got it right or wrong. There is nothing you can do."

But the challenge could not be ducked. At sea, the ship's weight was supported uniformly by the water. But resting on her keel in a dry dock for more than 50 years, she had sagged under the stress of her own weight. Already the hull was warped. If left in place, the ship could have eventually collapsed into matchwood.

Any fears proved misplaced. In May 2011, the Cutty Sark, supported by 24 hydraulic jacks each capable of lifting 200 tons, began its slow ascent; her progress was tracked by cameras inside the hull and an array of sophisticated monitors, which fed data to the engineers. The entire lift took two days to complete, before the Cutty Sark was at last anchored in position by 24 giant steel struts extending diagonally from the walls of the dry berth. Her last voyage was over.



**Top left:** A significant portion of the £50 million price tag went into fully restoring the ship, including inserting 150 tons of strengthening steelwork from S H Structures into the hull to restore its original shape. **Top right:** The ship's interiors were also restored, allowing for visitors to see how the ship operated during the 19th century. **Bottom left:** A new access tower, clad in glazing from Vitrine Systems and Tecu Brass from KME, helps control the flow of visitors. **Bottom right:** Inside the tower, stairs clad in rubber flooring from Dalsouple give access to the ship's main deck. **Opposite:** The hull of the Cutty Sark was reclad in Muntz metal, a brass alloy comprising 60 percent copper and 40 percent zinc.



# Project Credits

## Lakewood Cemetery Garden Mausoleum

**Project** Lakewood Cemetery Garden Mausoleum, Minneapolis  
**Client** Lakewood Cemetery Association  
**Architect** HGA Architects and Engineers, Minneapolis—Daniel Avchen, FAIA (principal-in-charge); Joan Soranno, FAIA (design principal); Stephen Fiskum, AIA (project manager); John Cook, FAIA (project architect); Nick Potts, AIA, Michael Koch, AIA, Eric Amel, AIA, Steve Philippi, Jay Lane, Ross Altheimer, Robert Johnson Miller (project team)  
**Structural Engineer** HGA—Paul Asp, Soon Sim Hakes  
**Mechanical Engineer** HGA—Craig Lemma  
**Civil Engineer** HGA—Jim Husnik  
**Electrical Engineer** HGA—Ben Gutierrez  
**Lighting Designer** HGA—Tao Ham  
**Interior Designer** HGA—Rich Bonnin  
**Graphic Design** HGA—Gretta Fry  
**Owner's Representative** Nelson, Tietz & Hoye  
**General Contractor** M.A. Mortenson Co.  
**Landscape Architect** Halvorson Design Partnership—Craig Halvorson, Bryan Jereb  
**Master Plan** Elizabeth Vizza  
**Mausoleum Consultant** Carrier Mausoleums Construction  
**Acoustic Consultant** Kvernstoer, Rönnholm & Associates  
**Audiovisual Consultant** Electronic Design Co.  
**Reflecting Pool Consultant** Commercial Aquatic Engineering  
**Mosaic Tile Consultant** CSI—Tom D. Lynch  
**Size** 24,500 gross square feet  
**Cost** \$25.2 million (including 4-acre site)

### Materials and Sources

**Audiovisual** AVI-SPL avispl.com  
**Bronze** MG McGrath mgmcgrath.com; Ellison Bronze (doors) ellisonbronze.com; Livers Bronze Co. (handrails) liversbronze.com; Stuart Dean (finishing) stuartdean.com  
**Curtainwall, Skylights, and Windows** Empirehouse empirehouse.com  
**Exterior Stone Cladding** M.A. Mortenson Co. mortenson.com

**Electrical** Hunt Electric huntelectric.com  
**Furnishings** Parameters parameters.com  
**Glass** Barber Glass Retail barberglass.ca; Viracon viracon.com; Architectural Glass Art againc.com  
**Interior Stone Cladding and Flooring** Grazzini Brothers & Co. (marble, terrazzo, onyx) www.grazzini.com  
**Irrigation** Green Acres Sprinkler Co. greenacressprinkler.com  
**Landscape** Aloha Landscaping alohalandscaping.com; Sterling Arbor sterlingarbor.com  
**Mechanical** Egan Co. eganco.com  
**Millwork** Commercial Millwork Solutions commercialmillworksolutions.com  
**Mosaic** RBC Tile & Stone; CD Tile & Stone (installation) www.cdtileandstone.com  
**Plaster** Armourcoat (polished) armourcoat.com; Pyrok (acoustical, Starsilent) pyrokinc.com; Olympic Cos. (installation) olympiccompanies.com  
**Pre-assembled Columbaria** Eickhof Columbaria www.eickhofcolumbaria.com  
**Signage** Designer Sign Systems designersign.com  
**Stone Cladding and Pavers** Cold Spring Granite coldspringgranite.com; CD Tile & Stone (paver installation) www.cdtileandstone.com  
**Waterproofing** Spec 7 Group spec7group.com

## Whitney Studio

**Project** Whitney Studio, New York  
**Client** Whitney Museum for American Arts  
**Architect** Lot-ek, New York—Ada Tolla, Intl. Assoc. AIA, Giuseppe Lignano, Intl. Assoc. AIA, (partners); Virginie Stolz (project architect)  
**Mechanical Engineer** Integrate Comfort Systems  
**Structural Engineer** Robert Silman Associates—Nat Oppenheimer  
**General Contractor** Craft Workshop  
**Lighting Designer** Lot-ek  
**Size** 720 square feet  
**Cost** \$400,000 (total project cost)

### Materials and Sources

**Adhesives, Coatings, and Sealants** Dow Corning Corp. (790 Silicone Building Sealant) dowcorning.com; Sonneborn (NP1 polyurethane sealant) sonneborn.com; EPDM rubber flashing; vinyl window film  
**Appliances** Samsung (64-inch monitors, in black) samsung.com  
**Ceilings** Push Design (Purepanels) pushahead.com  
**Flooring** Shipping container; Apitong plywood  
**Furniture** Vitra (Click table) vitra.com; Knoll (Spark stacking side chair) knoll.com  
**Glass** Orchard Group (custom fabricated by window maker Chris Otterbine)  
**HVAC** Mitsubishi Electric (dual zone split system, MXZ-4B36NA condenser, MSZGE24NA hi-wall fan coil,

MSZGE12NA hi-wall fan coil) mehvac.com  
**Lighting Controls** Lutron Electronics Co. lutron.com  
**Lighting** Legion Lighting Co. (fluorescents) legionlighting.com  
**Metal** Shipping container Cor-Ten Steel corrugated walls and corner members  
**Millwork** John Mohr  
**Paints and Finishes** Hempel (exterior paint for containers, primer) hempel.com; Benjamin Moore & Co. (interior paint) benjaminmoore.com; Talon Paint Products (primer)  
**Sprinkling** Laurmar Associates (installation)  
**Structural System** TRS Containers (made modification to the ISO shipping containers) shippingcontainers.com

## Cutty Sark Restoration Project

**Project** Cutty Sark Restoration Project, London  
**Client/Owner** Cutty Sark Trust  
**Architect** Grimshaw, London—Chris Nash (partner); Diane Metcalfe (associate director); Den Farnworth, Jorrin Ten-Have (project architects); Joe Laslett (architect)  
**Mechanical Engineer** WSP Group  
**Structural Engineer** Buro Happold  
**Electrical Engineer** WSP Group  
**Civil Engineer** Buro Happold  
**Construction Manager** Gardiner & Theobald  
**General Contractor** Ellmer Construction  
**Structural Steelwork** S H Structures  
**Secondary Steelwork** General Metal Constructors  
**Access Tower Cladding** Vitrine Systems  
**Mechanical/Electrical** Lorne Stewart  
**Substructures** J Coffey Construction  
**Elevators** Apollo Lifts  
**Size** 6,150 square meters gross internal floor area (66,198 square feet)  
**Cost** £50 million (\$81.2 million)

### Materials and Sources

**Ceilings** SAS International sasint.co.uk  
**Flooring** Dalsouple (rubber floor) dalsouple.com  
**Glass** Seele (main canopy) seele.com; Vitrine Systems (Access tower cladding) vitrinesystems.co.uk  
**Insulation** Celotex Insulation celotex.co.uk  
**Metal** General Metal Construction (architectural metalwork) gmcgroup.co.uk; KME (Tecu Brass, Access tower cladding) www.kme.com  
**Paints and Finishes** Leighs Paints www.leighspaints.com; British Gypsum www.british-gypsum.com  
**Roofing** Kalzip www.kalzip.com  
**Structural System** S H Structures shstructures.com  
**Walls** Hanson Thermalite heidelbergcement.com  
**Windows, Curtainwalls, and Doors** Leaderflush Shapland leaderflushshapland.co.uk

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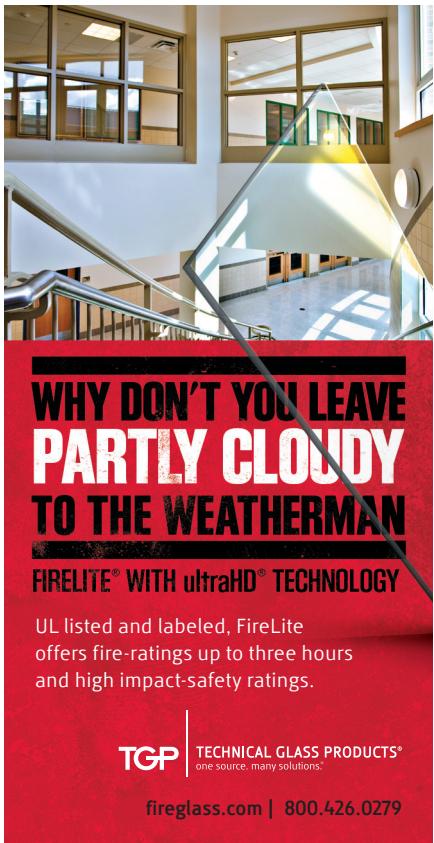


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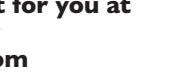
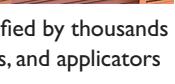
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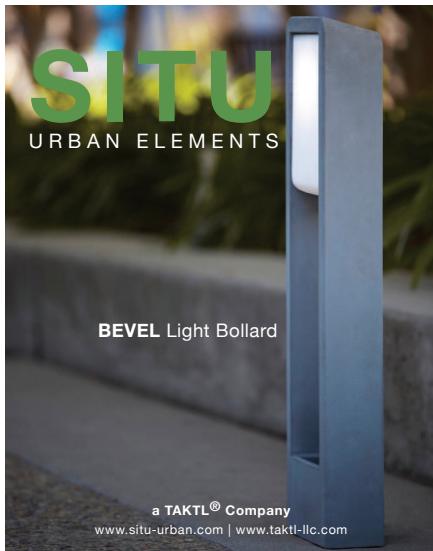
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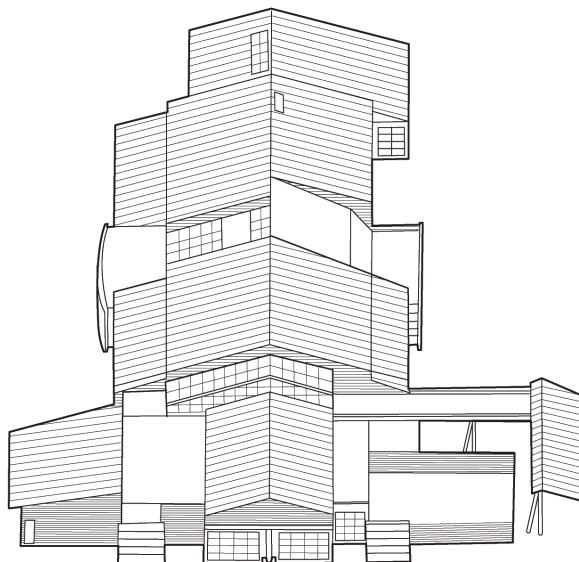
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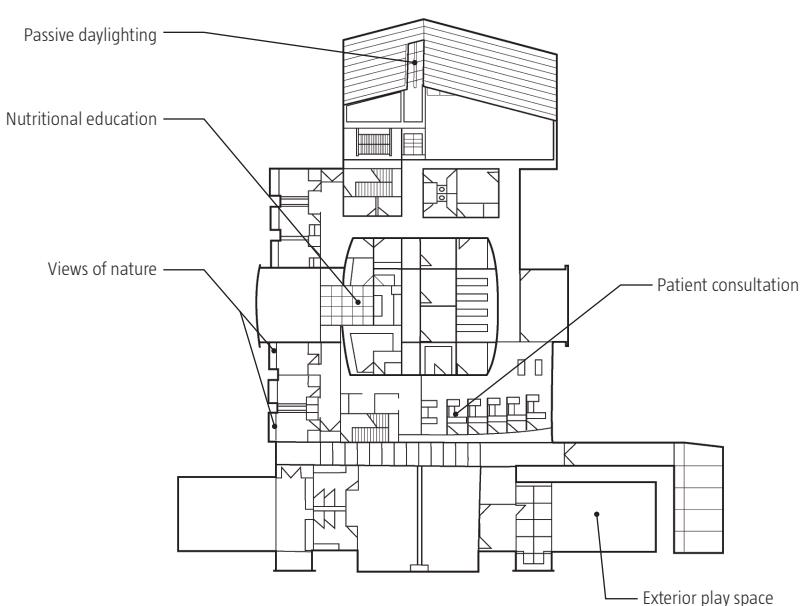
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# PAST PROGRESSIVES

**Suburban Health Facility Prototype**



**Plan Diagram Illustrating Research Findings**



## JURY

### 1992 P/A Awards Jury

John Archea  
Gregory Baldwin  
Steven Holl, FAIA  
Diane Legge Kemp, FAIA  
Tom Peters  
Wolf Prix, Hon. FAIA  
Stanley Saitowitz  
Jorge Silvetti

## 1992 P/A AWARDS RESEARCH CITATION

# Health(y) Research

BEN REFUERZO AND STEPHEN VERDERBER SHOWED HOW RESEARCH CAN LEAD TO BETTER PUBLIC HEALTH FACILITIES—WITHOUT COMPROMISING ARCHITECTURAL QUALITY.

Text by **Thomas Fisher, Assoc. AIA**

THE P/A RESEARCH AWARDS program recognized some of the best research under way in the profession. Two architects—Ben Refuerzo and Stephen Verderber—won three such awards, including this 1992 citation for redefining the place of architecture in community and public healthcare. Their four-volume report, commissioned by public health agencies in Louisiana and distributed statewide, assessed existing community health facilities in the region, conducted 25 post-occupancy evaluations, proposed carefully researched design guidelines, and developed a prototype design based on 143 evidence-based architectural and site planning concepts.

The jury lauded the report's integration of aggregated research and design solutions. "There is an almost inherent breakdown in the continuity between the research question and the architectural question," juror John Archea said. "This project is exemplary because

it moves beyond that." Some jurors, however, found the guidelines either too prescriptive or too vague, revealing the tension that still exists in the discipline between designers and researchers. Nevertheless, the report has had a "best-practices impact ... over the past 20 years," Verderber says, which is documented in his 2005 book *Compassion in Architecture: Evidence-based Design for Health in Louisiana*.

Subsequent post-occupancy reviews of the facilities built using this research show "the collective architectural quality ... markedly improving" from what preceded them. More importantly, the new facilities have resulted in greater usage and in significantly higher satisfaction among patients and health personnel. As Archea presciently observed, this work is "operating at roughly equivalent levels of sophistication in both its research and architectural sensibilities, and that's something that's rare."



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